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ABSTRACT

Investigating programs and full-time personnel which provide special needs services at the postsecondary level in Minnesota Area Vocational-Technical Institutes (AVTIs), a study assessed variability in practitioner use of individual student diagnostic information and prescriptive services in individualized education program (IEP) development and variability in educator characteristics which influence their use of diagnostic-prescriptive processes. Research literature on diagnostic-prescriptive planning for handicapped students can be organized into three areas: the educational context leading towards IEPs, IEP content and concerns, and models and categories of diagnostic and prescriptive services. In a controlled case study approach, thirty-one individuals representing fifteen AVTIs completed questionnaires including two student case studies. Divided into four primary informational areas, the data collected show that (1) practitioners providing the same services differ in level of preparation, experience, assigned job duties, and perceived needs for additional training; (2) participant perceptions of their employing institutions indicated varying degrees of service availability; (3) no significant differences were found in the average amount of diagnostic information used, while particpants varied in IEP determination; and (4) standardized terminology and operational procedures impact on the development of appropriate IEPs. (The questionnaire and supplemental statistical analyses of data are appended.) (YLB)

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FINAL REPORT

Project No. 4-R-79

A STUDY OF THE VARIABILITY IN DIAGNOSTIC DATA USAGE AND EDUCATIONAL PRESCRIPTION FOR VOCATIONAL SPECIAL NEEDS STUDENTS WITH HANDICAPS

Research and Development Project
in Career Education
Vocational

Conducted Using Funds Provided by the
Division of Vocational-Technical Education
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Under Subpart 3, Program Improvement and
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The project reported herein was performed pursuant to a contract from the Division of Vocational-Technical Education, Minnesota Department of Education. Contractors undertaking such projects under Division sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated, therefore, do not necessarily represent official Division position or policy.

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U.S. DEPARTMENT OF HEALTH,
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CHAPTER I

INTRODUCTION

Beginning in the early 1950's, the State of Minnesota took an active role in providing for the education of its handicapped children within both its private and public school systems. Initial attempts typically took the form of isolated classrooms or specialized institutions for a variety of handicapped children that fell into specific groups, such as the blind or deaf. A special education teacher was assigned to work on a full-time basis with the classes in these settings. This approach of isolating the handicapped student from contact with their non-handicapped peers was thought to be beneficial since specific problems related to the condition could be focused on within these settings. This approach was not restricted to Minnesota, rather it was a concept widely used for the delivery of educational and social services to the handicapped.

The concept and associated research concerned with "individual differences"have provided evidence which disputes this approach to a significant degree. What was previously considered to be a relatively homogeneous group, in terms of educational needs and goals, was found to be as variable in the levels of ability, educational need and ultimate outcomes as that of the larger, non-handicapped population. Similarly, an awareness of the inherent rights and needs of individuals, including those with handicaps, was not as evident during these initial stages of program development as at the present time.

The Civil Rights Movement of the 1960's aided in the gradual improvement of the condition of a number of minorities within our society, such as blacks, native Americans, hispanics, and women. However, the handicapped did not benefit significantly from these legislative and political efforts. Law suits against school districts, numerous pieces of responsive legislation, and demonstrations by the handicapped in the nation's capitol (Gilhool, 1976; Pflueger, 1977) were required to produce a national effort toward improving the condition of handicapped persons. Sections 503 and 504 of the Rehabilitation Act of 1973 prompted the end of discriminatory practices toward the handicapped, particularly in gaining access to needed educational, vocational and social services operated in part through Federal funding. Further, discrimation in employment by contractors doing $2,500 or more in business per year with the Federal government was prohibited.

Vocational education did not escape from the movement to respond to the needs of the educationally and vocationally handicapped. Substantial strides beyond the original parameters specified under the Smith-Hughes Act of 1917 (64th Congress, Chap. 114 & §,39 Stat. 929, February 23, 1917) have been made to accomodate the handicapped. The Vocational Education Act of 1963 (Public Law 88-210, 88th Congress, 77 Stat. 403, December 18, 1963) specified that services were to be provided to handicapped and disadvantaged persons who, by nature of their condition, were unable to succeed in a regular vocational education program.

Set-aside funding was allocated for the provision of support services and programs to meet these needs, with much of it left untouched due to lack of guidance in the development of such efforts (Olympus Research Corp., 1974). Systematic effort finally took place with the passage of the Vocational Education Ammendments of 1968 (Public Law 90-576, 90th Congress, 82 Stat. 1064, October 16, 1968). It was within this legislation that terminology and service categories were developed, to aid in the focusing of effort toward provision of relevant services and modifications that promote full-participation of "special needs" individuals in regular vocational education programs.

In addition, efforts have been made to enhance the full-participation of handicapped individuals in all aspects of society and life itself. Most predominant of these efforts is the Education for All Handicapped Children Act of 1975 (Public Law 94-142, 94th Congress, 89 Stat. 773, November 29, 1975) which has stressed the provision of "comprehensive services" to handicapped children ages three to twenty-one. Primary to the implementation of this legislation is the Individualized Education Program (IEP) process for diagnosing individual needs and prescribing appropriate services to meet these needs. A staffing, which is a formal conference comprised of interested parties from the school, human services agencies and the family, is held a minimum of two times per year to (1) assess the students educational and vocational needs; (2) set short and long-range objectives for educational programming;

(3) select, develop and schedule appropriate program modifications, supportive services and experiences to aid in meeting these needs; (4) establish personal responsibilities for staff, parents and student in meeting these individual needs and providing the prescribed services; (5) monitor the progress of the individual toward meeting established objectives; and (6) reassess objectives as warranted. Of prime consideration in the development of such an individualized approach to education is the inclusion of the handicapped student with their non-handicapped peers, unless it is fully justified to remove the child for specialized service at certain points in the program. This latter concept is referred to as "mainstreaming" by many practitioners and lay persons as well.

Due process procedures and group decision-making strategies are foundations on which the process of IEP development is based. Teachers, counselors, diagnostic and treatment specialist, administrators, human service agencies, parents, and the student, where appropriate are given voice in the assessment, development, implementation, and evaluation segments of the IEP process. Parental and individual rights are safe-guarded by due process judicial procedures, including: notice of meetings; notice of assessment; rights to decline service; appeal procedures; and so on. By law, school districts are required to provide or coordinate the availability of services required by the Individualized Education Program (IEP) for each student. Even if services or programs are not available within the school district, there is no acceptable reason for nonprovision. The district must either develop or secure services from outside if they have been specified in the IEP. Parents and students have recourse through the court processes if this is not done.

The Rehabilitation Amendments of 1974 (Public Law 93-516, 93rd Congress, 88 Stat. 1617, December 7, 1974) initiated the Individualized Written Rehabilitation Plan (IWRP), a procedure which provided a foundation for the IEP process specified under subsequent special education legislation. The IWRP procedure is almost identical to the IEP process specified, except that the rehabilitation counselor and the client/student develop the plan of service and review it at least annually. Services are usually contracted through outside agencies, such as sheltered workshops, private educational facilities, and vocational education programs. The rights of the individual are safeguarded under Section 503 and 504 of the legislation, much the same as procedural safeguards established under the Education for All Handicapped Children Act of 1975.

Vocational Education has become involved in the individualization of training and supportive service programs primarily at the secondary level, in conjunction with the shifts brought about by P.L. 94-142. The extent to which vocational educators have become involved in the development of Individualized Education Programs (IEP's) has varied quite extensively during the first few years of implementation. The process has many technical and procedural guidelines which are sometimes difficult to work with due to extensive amounts of time and energy which must be devoted to account for all aspects of planning and implementation. Although much of the procedure was transposed from the rehabilitation model of individualizing service programs, which was in operation for several years prior to the special education legislation, little has been done to assess the efficiency and effectiveness of such a process.

At the post-secondary and adult levels of vocational education, an individualized procedure such as that described, has not been required by Federal or state regulation. Although the Rehabilitation Ammendments of 1974 account for non-discrimination of the handicapped in receipt of service or employment from the point at which they reach employable age to death, a set procedure for providing these services has not been advocated beyond that which exists between the counselor and client. All of the previously cited legislation and published communications between Federal education and rehabilitation agency heads (Boyer and Humphreys, 1977) have emphasized a need for cooperation and collaboration in the development of programs and provision of services. Only recently have efforts become visible to develop these agency ties. National conferences and research efforts which bring together state commissioner's of special education, vocational education, and vocational rehabilitation as well as numerous other administrative and direct service providers from other agencies and facilities have been taking place more frequently. Outcomes are usually in the form of establishing state planning procedures for developing relationships and compatible operations between those concerned. Parent groups, advocates and the handicapped individuals themselves, have voiced concern as to the appropriateness of and degree of access to services. More and more concern and need has been voiced from both fronts as to the development of an Individualized Education Program (IEP) process at the post-secondary and adult levels. Extension of the IEP process to include non-handicapped individuals is coming to the forefront at a rapid rate.

At the post-secondary level of vocational education in Minnesota, a substantial system to provide services has been developed for the student who is handicapped and/or disadvantaged. Numerous professional staff members provide direct services, such as remedial reading or math, and diagnostic-prescriptive services to the individual student. However, the effect of the diagnostic-prescriptive process presently in operation in Minnesota Area Vocational-Technical Institutes (AVTI's) has not been assessed, nor has it been in other states.

Statement of the Problem

Little is known about the background and practices of vocational special needs personnel who are providing diagnostic-prescriptive services to the handicapped students in Minnesota Area Vocational-Technical Institute's (AVTI's). Further, the intensity of usage of diagnostic information and the breadth or scope of the resulting supportive service program developed for the individual student has not been assessed. No standardized procedures for assessing the needs or abilities of individual students has been specified by Federal or state law or regulation, leaving most institutions on their own in the development of highly complex systems of information collection and transformance into viable service applications. No standardized terminology for modifications and services nor types of diagnostic information that may be of use to vocational special needs practitioners is existent. To understand the comprehensive needs of individuals, to determine appropriate service plans and to coordinate or collaborate with other service providers requires that some form of standardized terminology be utilized. Likewise, an understanding of the manner by which service programs are planned within actual operations is vital to these inter- and intra-agency efforts and to the provision of an appropriate education to the individual student.

It is the primary purpose of this study to investigate the diagnostic and prescriptive processes used with handicapped students in the Minnesota Area Vocational-Technical Institutes. The study is limited to those programs and full-time personnel which are providing diagnostic-prescriptive services at the post-secondary level in these institutions. Supplementary aims are to develop standardized categories of diagnostic information, program types, modifications and supportive educational services which can be used effectively and efficiently within vocational special needs programs and in collaboration with external human service agencies. An understanding of the preparation of personnel providing these services as well as the perceptions of such persons regarding the availability of services, will further aid in clarifying the degree to which the educational needs of handicapped students are presently met in Minnesota's AVTIs. The outcome of this aspect of the study is aimed at identifying core service consideration(s) for establishing and developing vocational special needs programs.

Specific Objectives

The data were gathered through this study to answer the following primary and secondary questions:

1.0 How much variability exists in the diagnostic processes used by individual vocational special needs practitioners in determining the needs of handicapped students?

  1.1 Is there a difference between practitioners in the amount of information (number of reports or pieces used) that they use to diagnose the needs of a handicapped student?

  1.2 Is there a difference within practitioners in the amount of information they use to diagnose the needs of students with differing handicaps?

  1.3 Is there a difference in the number of times that categories of diagnostic information are selected by practitioners to determine the needs of student who is handicapped?

1.4 Is there a difference in the number of times that categories of diagnostic information are selected by practitioners to determine the needs of students with differing handicaps?

1.5 Is there a difference in the order in which categories of diagnostic information are selected by practitioners to determine the needs of students with handicaps?

2.0 How much variability exists in the educational prescriptions developed by individual vocational special needs practitioners for handicapped students?

2.1 Is there a difference between practitioners in the type of program placement they prescribe for students who are handicapped?

2.2 Is there a difference between practitioners in the types and numbers of program modifications they prescribe for students with handicaps?

2.3 Is there a difference between practitioners in the types and numbers of supportive education services they would prescribe to meet the needs of students with handicaps?

3.0 What characteristics of vocational special needs practitioners appear to influence the intensity of diagnosis and prescription that is provided to handicapped students?

4.0 How confident are vocational special needs practitioners in their diagnosis of need and prescription of services for handicapped students?

5.0 What characterizes the vocational special needs personnel who are providing diagnostic and prescriptive services in post-secondary vocational education programs in Minnesota?

6.0 What are the characteristics of Minnesota's AVTIs in terms of the availability of diagnostic and prescriptive services for handicapped students?

7.0 What concerns and feelings do vocational special needs personnel have about present practice and future needs for providing special needs programming in Minnesota AVTIs?

Limitations and Assumptions

Due to the nature of this study and the data presently available, the following are perceived to be limitations on its conduct:

(1) Only post-secondary special needs personnel from Minnesota AVTIs were included in the study, limiting the generalizability of results to this group, due to significant differences between program operations at various educational levels (e.g. secondary) and across states (Olympus Research Corporation, 1974; Division of Vocational-Technical Education, 1975; Schneck, Lerwick and Copa, 1978).

(2) Only those individuals employed on a full-time basis during the 1978-79 academic year were included in the conduct of the study, since no data exists for previous years and individuals employed as part-time staff do not provide a substantial number of hours of direct or comprehensive service to handicapped students in these institutions (Schneck, Lerwick and Copa, 1978).

(3) No experimental treatments were administered in this study, rather it was aimed at evaluating the present process(es) of diagnoisis and prescription which take place in vocational special needs education in Minnesota AVTI's.

(4) Since voluntary participation of practitioners was required, given a fairly limited number (approximately 121) of individuals actually providing diagnostic-prescriptive services at the post-secondary level, travel restrictions, limited budgets and personal preferences, a rather small number of practitioners took part in this study. With these factors in mind, generalizations made to the total group offering these services is guarded.

(5) In addressing the characteristics, needs, goals and services required of vocational special needs students, this study only was concerned with the handicapped student.

(6) The simulated student case studies utilized in this study to assess the diagnostic and prescriptive practices of vocational special needs personnel were limited to two (2) multi-handicapped examples. Multiple handicapping conditions utilized in the case studies were limited to: specific learning disability and orthopedic impairment; and specific learning disability, economic disadvantagement, social problems and congenital deafness. These combinations of handicapping conditions portray primary aspects of the diversity in incidence and severity of disability (high incidence of occurrence/low severity of disability; low incidence/high severity) characterized by students presently being served through vocational

special needs programs in Minnesota (Schneck, et al, 1978). Since these case studies may not represent the full range of handicapping or disadvantaging conditions faced by each practitioner or within certain institutions, they are limited in their representation of the manner by which diagnostic and prescriptive services may be offered to others with differing needs.

Definition of Terms

Terminology utilized throughout this study, with respective operational definitions, are as follows:

Area Vocational-Technical Institute (AVTI) -- An organization which is designated by the State Board of Education, operated by a local school district or intermediate district composed of a number of smaller districts, whose purpose is to provide post-secondary instruction to persons who have graduated or terminated their high school education, and are available for study that will prepare them for entrance into the labor market. There are presently 34 institutes operating within the State of Minnesota (Minnesota Statute 1961, Section 121.21).

Assessment -- A process or procedure of measurement which has as its purpose to: (a) describe an individual; and (b) to evaluate an individual's relative abilities as a basis for developing an instructional program or providing appropriate treatment to overcome the effects of physical, mental, emotional, or social condition (Hill and Bruininks, 1977; Reynolds, 1971; Pruitt, 1977).

Diagnosis -- Investigation or analysis of the cause or nature of a condition, situation, or problem affecting the success of an individual in a particular educational, vocational or social situation.

Handicapped -- Federal legislation states that for the purpose of vocational education, a handicapped person is:

(a) mentally retarded, hard of hearing, deaf, speech impaired, seriously emotionally disturbed, orthopedically impaired, other health impaired, or specifically learning disabled; and (b) who by reason of the above: (1) requires special education and related services; (2) cannot succeed in the regular vocational education program without special assistance; or (3) requires a modified vocational education program (Federal Register, October 3, 1977, p. 53864).

Individualized Education Program (IEP) -- A written statement for each handicapped child . . . which shall include (a) a statement of the present levels of educational performance of such child, (b) a statement of annual goals, including short-range objectives, (c) a statement of the specific educational services to be provided to such child, and the extent to which such child shall be able to participate in regular education programs, (d) the projected dates for initiation and anticipated duration of such services, and (e) appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual basis, whether instructional objectives are being achieved (Hull, Parrish and Hill, 1977; P.L. 94-142; P.L. 94-482).

Individual Written Rehabilitation Plan (IWRP) -- A written statement for each (rehabilitation) client, individually written by the client and counselor, which specifies the rehabilitation plan necessary for the client to enter into gainful employment (competitive, sheltered, work activity or homebound) . . . which includes (a) an assessment of the present functioning levels and needs of the client, (b) a statement of the annual objectives, including short- and long-range goals, (c) a statement of the specific services to be provided to the client, (d) projected dates for initiation and anticipated duration of such services, and (e)objective criteria and evaluation procedures that are scheduled to determine whether objectives and goals are being achieved. Annual review on a joint basis by the client and counselor is required and redevelopment of specific parts of the IWRP are completed as necessary. It is comparable to the IEP, however the main objective is for entrance into gainful employment and independent functioning in other life functions, whereas the IEP is specifically aimed at educational service delivery although the ultimate goals may be similar (Dunn, D., 1973; P.L. 93-516)

Mainstreaming -- The temporal, instructional and social integration of eligible exceptional children with normal peers, based upon an ongoing individually determined educational planning and programming process and requires clarification of responsibility among regular and special education, administrative, instructional and supportive personnel.

Exclusion of the handicapped student from settings where involvement with non-handicapped peers may occur requires justification, but only for that portion of the program in which it is deemed warranted and appropriate (Kaufman, Gottlieb, Agard and Kubic, 1975).

Other Direct Educational Supportive Services -- Other services which do not directly relate to the acquisition of technical skills that are required in employment, provided through resources outside of the vocational education system, which aid the student in participating and succeeding in the educational program and other life experiences. These services are generally non-vocational in nature, but have bearing upon the ability of the person to participate successfully in said program. They may include, but are not limited to: maintenance (food, clothing and lodging); transportation; purchase of prosthetic appliance; medical and dental assistance; adaptive home equipment; and so on (Schneck, et al, 1978).

Post-secondary Vocational Education -- Vocational-technical skill training programs operated within authorized institutions to provide skill training for employment in occupations requiring less than a baccalaureate degree, for persons sixteen years of age or older, who have graduated from or left elementary or secondary school (P.L. 94-482).

Prescribe -- To lay down, in writing or otherwise, as a rule or a course to be followed; appoint, ordain, or enjoin, as duties or actions; med. to designate or order for use, as a remedy or treatment; law, to render invalid by negative prescription (Webster's Dictionary of the English Language, 1975)

Prescriptive Teaching -- A method of utilizing diagnostic information for the modification of educational programs for (children) with problems. It accomplishes this purpose by determining the educational relevance of the childs' disability, and devising teaching procedures to yield desirable changes in the childs' academic progress, emotional condition, and social adjustment (Peter, L.J., 1965).

Regular Vocational-Technical Education Program -- A program of vocational-technical instruction which: (a) is planned and operated and meets established standards for similar programs within the rules and regulations of the State Board of Education and other certifying agencies; (b) has an established rate of progress which is expected of all students, the objectives of the program are identified in terms of specific occupational skills, completion of the program depends upon the ability of the student to reach program objectives within the specified period of time allotted; or (c) usually has entrance requirements, such as reading ability at a specific grade level, computational knowledge and skills at a specified grade level, and physical abilities which will permit the student to use standard facilities and equipment (Suggested Utilization of Resources and Guide to Expenditures, 1972).

Special Educational Support Services -- Services which are used to provide additional educational support to special needs learners enrolled in vocational instruction programs. Additonal services beyond the scope of those authorized through vocational and special education may be included under the categories of Other Direct Educational Support Services or Other Non-Direct Educational Support Services, which include those services which aid the student participating but have or do not have clearly defined relationships to program content, respectively. These special educational support services may include, but are not limited to: (a) remedial instruction; (b) vocational guidance; (c) counseling and testing services; (d) employability skills training; (e) communication skills training; (f) special transportation facilities and services; (g) special educational equipment, services and devices; and (h) reader and interpretor services, although these are by no means the complete extent of possible services included under authority of vocational or special education legislation (Schneck, et al, 1978; Title 45, Code of Federal Regulations, Section 102.3, 1976, p. 120).

Special Needs Student -- Refers to disadvantaged and handicapped persons participating in regular vocational-technical education programs who have difficulties in succeeding due to the effects of these conditions and require specialized supportive services or program modifications in order to participate or succeed (P.L. 94-482; Minnesota Department of Education, 1975.

Vocational Education -- Organized educational programs which are directly related to the preparation of individuals for paid or unpaid employment, or for additional preparation for a career requiring other than a baccalaureate or advanced degree; and for these purposes . . . organized education programs means only (1) instruction related to the occupation or occupations for which the students are in training or (2) the acquisition, maintenance, and repair of instructional supplies, teaching aids and equipment; and the term vocational education does not mean the construction, acquisition or initial purchase of equipment, of building(s), or the acquisition or rental of land (P.L. 94-482, Part C, Section 195, 1976)

CHAPTER II

REVIEW OF THE LITERATURE

The conduct of this research has necessitated an extensive review of the literature addressing the assessment of educational and vocational needs of individuals whose handicapping conditions have impeded their full participation in many of life's functions and benefits. The intent of this review was to examine specific concepts, issues and practices which impact upon diagnosis of individual needs and provision of appropriate services to meet those needs. Of particular interest were those diagnostic-prescriptive models which show promise for application to the system of vocational special needs education that presently exists within Minnesota Area Vocational-Technical Institutes (AVTIs). The results of this investigation were meant to provide a clearer understanding of diagnostic-prescriptive processes and the numerous problems that are entailed in their implementation.

A multitude of research studies, journal articles and texts have been written about the provision of educational services to handicapped students at the elementary and secondary level. Likewise, extensive efforts have been undertaken by public and private agencies to improve social and vocational services for handicapped individuals who have left the educational system. Only recently has effort been expended toward the development and refinement of an appropriate service support system within the post-secondary level of vocational education that is specifically directed toward the handicapped student. Limited research is available that is directed toward the examination of the full ramifications of mainstreaming handicapped persons into regular post-secondary vocational education programs with their non-handicapped peers. Additionally, information on the scope and effectiveness of specialized programs and services presently offered through or in conjunction with vocational education facilities is negligible. This is particularly true in those aspects of diagnostic-prescriptive service planning, which provide the foundation for accessing high quality educational opportunities for handicapped persons.

This chapter is organized to investigate the present status of diagnostic-prescriptive planning for handicapped students, as it is practiced within vocational education and related fields.

The first section of this review, the Educational Context Leading Towards Individualized Educational Programming, examines the critical issues within educational programming that have led toward progressive inclusion of handicapped students in regular classrooms with the non-handicapped. This discussion is aimed at: (1) describing the present context in which diagnostic-prescriptive planning takes place; and (2) providing a summary of the major concerns that have impacted on the methods by which it may be implemented in vocational education programs.

The second section, Content and Concerns of the Individualized

Education Program, expresses the procedures, considerations and provisions required in the development of IEP's for handicapped students. Further, it explores problems encountered in implementing the concept of individualizing educational programming in relation to the numerous concerns which brought this movement about. The present conditions that exist in post-secondary vocational education within Minnesota AVTI's were also emphasized.

The third and final section, Models and Categories of Diagnostic and Prescriptive Services, investigates alternative assessment and remediation methods that are useful in identifying and meeting the vocational, educational and social needs of the handicapped. The aim of this section is to assess the type of diagnostic and prescriptive methods which could be considered in development of a comprehensive operational model for special needs services in post-secondary vocational education.

The basis for this review of the literature was to explore a variety of problems associated with the provision of diagnostic-prescriptive vocational education for the handicapped. The review served both as a study of the present status of individualized educational programming and a commentary on future needs, alternative approaches and variables related to the appropriate provision of post-secondary vocational education for the handicapped.

Educational Context Leading Towards Individualized Educational Programming

Formal education has served a vital role in the development of the United States, as a manner in which to prepare the young for participation in the rights and responsiblities of society. The Council for Exceptional Children, in a 1971 policy statement, defined the principle of education as:

> . . . the philosophical premise of democracy that every person is valuable in his own right and should be afforded equal opportunities to develop his full potential. Thus, no democratic society should deny educational opportunities to any child, regardless of his potentialities for making a contribution to society (Reynolds, 1973, p. 18).

However, education has not always been provided to or on an equal basis with all persons desiring to benefit from or participate in it. This has been quite evident for those segments of society who have not typically met arbitrarily set participatory requirements, due to their color, economic stature, ethnic heritage, or handicap. For individuals with handicaps, life has often been characterized by neglect, denial and rejection, by even those closest to them.

Public education programs for handicapped students have only been in existence since the turn of the century, as identifiable entities within public schools. Prior to this point in time, institutional programs had been provided for undifferentiated groups of handicapped persons, as far back as the colonial period. The handicapped were identified, excluded from participating in roles typically assumed by their non-handicapped peers, and quite often shuttled from the mainstream into an institution for the remainder of their lives. Once placed in the institution, their civil rights were further stripped by the non-handicapped who administered the programs within the facility (Wolfensberger, 1972). Civil rights for the handicapped, although guaranteed by the Constitution, were virtually non-existent. This point is quite evident, particularly in the numerous court actions (Beattie vs. Wisconsin State Board of Education, 1919; Watson vs. City of Cambridge, 1893) upheld to school's rights to exclude individual students, based upon non-conformity to subjective standards not necessarily directly related to the persons ability to perform adequately in the school environment (Sabatino and Miller, 1979).

Not all of the outcomes of the institutional movement should be considered as negative, since many of the methods presently used to meet the needs of persons handicapped by specific conditions had their origins during this period. The works of Laura Bridgeman with Helen Keller, Thomas H. Gallaudet (1787-1851) with the hearing impaired, and Louis Braille (1809-1852) with the blind, as well as many others, continue to be recalled through observation of special education techniques used in the present day.

Reynolds (1973) has stated that there are four primary time periods that account for the development of educational services, to this point. Specifically, these time periods and the educational programming approach attributed to each, include: late nineteenth century -- residential school programs; early twentieth century (about 1900 to 1945) -- prototype community-based programs; about 1945 to 1970 -- explosion of simple "special class" programs; and beginning about 1970 -- that of more inclusive arrangements based upon individual needs (Sabatino and Miller, 1979, pp. 2-3).

Early efforts toward provision of special education services to the handicapped were in the form of residential schools established to deal with specific categories (blind, deaf, etc.) of handicapping conditions. Both private and public schools were established, however, only a limited number of individuals were enrolled due to economonic considerations and the lack of trained personnel to deal with those having severe or multiple handicaps. At present, a number of individuals still reside in state or privately funded schools and hospitals. Although there is presently a movement toward "deinstitutionalization", the approach is still thought to be a viable service for the severely and multi-handicapped (Sabatino and Miller, 1979, pp. 3-4).

Community-based programs attempted to provide special classes and day schools for the handicapped. Much of their structure and methods came out of the programs begun in the residential settings. These efforts were not very intensive, rather the students were only in classes for portions of the normal school day. Tolerance was more symbolic of the approach exhibited, not serious effort to train and deal with the needs of the exceptional child. Economic constraints, such as those caused by the Depression, lack of accurate knowledge of the cause(s) and potential for remediation of disabling conditions and attitudes ingrained in society, did much to prevent the development of appropriate programs at this time. The use of standardized testing, based upon the work of Binet' (Anastasi, 1970) in the assessment of school children in Paris, as well as others, provided a process for identifying and selecting individuals for participation in these programs. Limited numbers of programs, lack of trained staff, and minimal funds did much to decrease the numbers of students who could even benefit from these meager services. Testing was utilized from this point to the present, to determine the placement of handicapped students in special education services. Not until the late 1920's and early 1930's, did formal academic programs develop for the training of teachers for the handicapped (Sabatino and Miller, 1979, pp. 5-6).

Efforts to serve the handicapped in public schools, as well as the development of teacher training programs going beyond the residential school model, were evident on a large scale after World War II. Continuing effort has been shown since, through increasing enrollments in public education and increases in the number of special education teacher training programs and related disciplines (e.g. vocational rehabilitation counseling, vocational special needs eduction). In conjunction with this movement, parent advocacy groups were formed and specific agencies of the Federal and state governments were established to aid in the development and funding of efforts to educate the handicapped. Beyond education-based efforts, research and services to handicapped adults were greatly increased, partially as an outgrowth of the evident needs of many wounded veterans returning from the war and an examination of developments in the education of the handicapped in other parts of the world (Wolfensberger, 1973). Many of the previously unserved handicapped, because they did not meet the criteria extablished under medical or psychometric models of classification, began to receive needed services. Toward the end of this period, during the early and mid-sixties, many of the traditional methods used to educate and remediate needs of the handicapped began to be questioned by parents, professionals, legislator's and others (Reynolds, 1973; Sabatino and Miller, 1979). Litigation appeared that directly addressed the exclusion of handicapped individuals from appropriate education and societal activities, finding basis in primary rights granted under the Constitution. Much of this litigation, was oriented toward testing practices, placement procedures, practitioner qualifications, and inadequacies found in the intervention strategies used.

A number of court cases culminating during this period, provided impetus for Federal and state legislation which would be formed in the late sixties and during the seventies. Brown vs. Board of Education (1954) was a foundation for the development of the right to education. Within the Supreme Court's decision, it was determined that educational opportunity "be made available to all on equal terms." However, continued exclusion of the handicapped from regular classrooms and non-provision of free public education mandated by state laws took place. Primary arguments offered by school administrtors included; (1) that certain children were uneducable or untrainable and could not be effectively serviced in the public schools; and (2) that the financial costs of these services would place undue burden on the schools, if they were directed to be provided for the handicapped in the public schools (Sabatino and Miller, 1979).

Further judicial actions, specifically the cases of the Pennsylvania Association forRetarded Children (PARC) vs Pennsylvania (1972) and Mills vs. Board of Education of the District of Columbia (1972), provided much in the way of reemphasis of previous judicial decisions and explicated additional concerns with the methods of providing special educational services to the handicapped. Within these two cases, it was determined that: (1) all handcapped children were capable of benefitting from education; (2) the state was ordered to provide a free public education program to these students; (3) the State of Pennsylvania no longer could classify children as untrainable or uneducable; and (4) these rights were extended to all children regardless of their handicapping condition (Sabatino and Miller, 1979; Practicing Law Institute, 1973). Further, regardless of the financial burden that would be incurred by schools in providing special education services, the court contended that the responsibilities of schools to educate excluded children far outweighed the need to conserve financial resources. These rights were extended further, to those in public and private institutions, by the outcomes of such cases as: Wyatt vs. Stickney (1971); New York Association of Retarded Children vs. Rockefeller (1972); and Maryland Association of Retarded Citizens vs. Maryland (1974) (Gilhool, 1976; Herr, 1976). Resulting from these court decisions is the present thrust toward insuring that education provided is done only after an appropriate assessment and then delivered according to an individually developed intervention program (Fredrick L. vs. Thomas,(1976) (Sabatino and Miller, 1979, p. 135).

With the extension of these procedures and rights to all handicapped students, it was made quite clear that a range of diagnostic, educational and training programs in academic and vocational areas were necessary part of public school curriculums. Further emphasis was also given to the consideration of personal and social functioning of these individuals, which were important determinants of later employability and independent living. All of these considerations have placed weight on the development of comprehensive services programs, where individual functional needs are dealt with in an integrative and continuous manner to insure appropriate treatment until the person is able to participate and succeed independently (Thurlow, et al, 1978).

To meet these challenges, we must acknowledge the need for improved methods of measuring the functional characteristics and needs of handicapped students as being a foundation in determining the appropriateness of educational services that are used as interventions. Measurement is necessitated both to identify individuals in need due to a handicap, and for determining effective interventions (Sabatino and Miller, 1979; Phelps and Wentling, 1977; Fearn, 1970).

The emergence of the 1970's brought with it significant amounts of legislation which strive to implement these conditions, responsibilities, and rights in the public education setting. Inclusion of handicapped persons in regular class settings with the non-handicapped wherever it is appropriate, is the thrust of present educational movements. Decisions on exclusion, such as in the case of Sweatt vs. Painter (Gilhool, 1976), have carried over into the present manner by which Federal funding of state education programs takes place. Under the Mathias Amendment and with guidance from the Council for Exceptional Children's model statute, each state is required to adopt:

> . . .procedures to insure that to the maximum extent appropriate, handicapped children in public or private institutions or other care facilities are educated with children who are not handicapped, and that special classes , separate schooling, or other removal of handicapped children from the regualr education environment occurs only when . . . education . . . cannot (otherwise) be achieved satisfactorily (p. 12).

This mandate was later to provide a foundation for such legislative actions as Section 504 of the Vocational Rehabilitation Act of 1973, Title VI of the Civil Rights Act of 1964, and Public Law 94-142, the Education for All Handicapped Children Act of 1975. However, even after passage of numerous laws and constitutional amendments, the status of the handicapped has only recently begun to progress toward the objectives specified nearly twenty-five years ago. Arkansas is destined to be the final state to implement provisions of P.L. 94-142, the Education of All Handicapped Children Act of 1975, directed toward elimination of the exclusion of handicapped children from regular public education programs, during the 1979-80 academic year (Gilhool, 1976, p. 13).

Within the past several years the concept of integrating the handicapped in regular public education classes with their non-handicapped peers, referred to as "mainstreaming", has been recognized as a viable educational service alternative. The Council for Exceptional Children, during its 1973 convention in Dallas, Texas, endorsed the concept for the organization and administration of special education programs. It stated that:

> Under suitable conditions, education within the mainstream can provide the optimal opportunity for many exceptional children. Consequently, the system for the delivery of special education must enable the incorporation of special help and opportunities for them in mainstream settings . . . Children should spend only as much time outside regular

classroom settings as is necessary to control learning variables that are critical to the achievement of specified learning goals (Birch, 1974, p.2).

Although agreement has been achieved with the general concept of what "mainstreaming" is, there is divergent opinion as to what it actually means in practice. Birch (1974) provided a description of fourteen elements that need to be included in an operational definition of "mainstreaming." This description was agree upon by a majority of the state directors of special education in the United States. These elements are:

1) Mainstreaming refers to assigning handicapped pupils to regular classes and providing special education for them;
2) In mainstreaming, regular classroom teachers broaden and adapt instructional procedures and content so all children are incorporated into regular programs at levels manageable for each child and teacher;
3) Mainstreaming may be done at any level, preschool through secondary (or post-secondary and adult based upon recent changes in the law);
4) In mainstreaming, the handicapped pupil reports to the regular classroom teacher;
5) In conventionally organized schools or in open space schools the handicapped pupils being mainstreamed spend half or more of the day in regular classes;

6) In conventionally organized schools the special education teacher has a headquarters room to which pupils can come for periods of time (resource room) from the mainstream rooms to which they are assigned;

7) In open space schools the special education teacher may be a member of the team serving in the open space setting or may have a separate room as headquarters.

8) Mainstreamed handicapped pupils leave the main group only for essential small group or individual instruction, educational assessment, and to pick up or deliver assignments prepared by the special education teacher;

9) The regular class teachers and the special education teachers agree upon individual schedules and assignments as needed for children begin mainstreamed;

10) Regular class teachers are responsible for grades and report cards for the mainstreamed handicapped pupils, but they may consult with special education teachers on grading;

11) Special education teachers help regular class teachers also by providing educational assessments and instructional consultation for regular class pupils who may not be eligible for special education in the usual sense;

12) Mainstreaming implies the following operational principle: Handicapped pupils usually begin their education in regular kindergarten or first grade groups with special education support, and they are removed to special classes or special schools only when the necessity to do so is shown and only for periods required to prepare the pupils for return to regular classes;

13) Criteria for selecting handicapped pupils for mainstreaming are in terms of matching pupil's educational needs and the capability of the mainstream program to meet those needs, rather than in terms of the severity of the pupil's physical, mental, emotional or other handicap; and

14) Mainstreaming has a place in the spectrum of plans for organizing instruction, space and facilities to accomodate the educational needs of handicapped pupils

These checkpoints have served to portray the concept of "mainstreaming" prior to recent legislative efforts, such as P.L. 94-142, which have expanded upon the procedures of assessment, prescription, due process and protection under the law, commonly referred to as the "least restrictive alternative" movement and its ancillary conditions.

Through legislative efforts, such as the Education Amendments of 1976 (P.L. 94-482), the Vocational Education Act of 1963 (P.L. 88-210), the Education for All Handicapped Children Act of 1975 (P.L. 94-142), the Rehabilitation Act of 1973 (P.L. 93-112 as amended by P.L. 93-516), and the Rehabilitation, Comprehensive Services and Developmental Disabilities Act of 1978 (P.L. 95-602), concerted effort has been focused on the major agencies and elements which provide education, vocational and social services to handicapped individuals of all ages. These efforts have included: collaborative development of state plans for service implementation; cooperation in the use of necessary services; formal service agreements; and continued interaction between agencies in programmatic aspects of development, research and evaluation (Boyer and Humphreys, 1978). This need for cooperation was enhanced by the Division of Vocational-Technical Education, Minnesota State Department of Education (1975) in an earlier statement taken from its position paper on special needs services:

> Perhaps the single most important element which must be present in order to integrate exceptional children into regular classrooms is some form of support help. The support help must be sufficiently comprehensive and sophisticated to meet a vast array of individual needs. There must be a coordinated effort to bring together resources from all directions - general education, special education, vocational education, vocational rehabilitation, community mental health, welfare . . . As much as possible the support service should not be provided on the basis of major handicap type, rather according to individual needs . . . lack of it in a mainstream system is the degree to which the curriculum is individualized. Individualized curriculum facilitates prescriptive educational planning.

Nevertheless, good intentions do not overcome the numerous problems that have been incurred in attempts to implement diagnostic-prescriptive planning, and more importantly, the overall concept of "least restrictive alternative." Five general areas within special education, that have led toward litigation, were pointed out by Ross, DeYoung and Cohen (1971) and elaborated upon by Sabatino and Miller (1979). These areas all involve the use of tests or testing practices, in a number of ways. Specifically, these areas include: the use of inappropriate tests; incompetent administration of tests or assessment practices; limitation of parental involvement; inadequate special education practices, treatments or interventions; and stigma that is placed on the handicapped individuals by the identification and assessment processes used. Although these aspects were attributable to special education programming, changes in recent legislation and procedures developed for the implementation of support services to the handicapped under vocational education and vocational rehabilitation have also warranted consideration of these issues (Olympus Research Corp., 1974; Brolin, 1973; Brolin, 1976; Hively and Reynolds, 1975).

Inappropriate Tests -- Salvia and Ysseldyke (1978) have pointed out that current standardized testing instruments and procedures may not be measuring important learning characteristics, in that the outcome measures do not provide information on individual skills, traits or aptitudes that are useful in development of an educational program. The technical procedures by which tests have been developed have also come under fire, in that they frequently do not adequately include experential and background characteristics representative of a broad range of individuals in their item sampling methods. When applied to a handicapped or disadvantaged individual in a testing situation, nonrepresentative performance is obtained, due to the lack of the individual possessing these experiences. The administrative procedures have been improved yet the original goals for which the tests were developed, "to gather samples of behavior that can be used to differentiate among individuals", has steadily been missed (Sabatino and Miller, 1979, p. 139). Although difficulty has been expressed in the development of a culturally fair measure, one which does not discriminate unfairly on the basis of race, social experience or handicap (Anastasi, 1972; Sabatino and Miller, 1979), the use of performance based assessment devices (e.g. manipulative measures) inclusive of common traits to all cultures may be possible. Finally, limited reliability and validity of standardized tests presently in use in public schools has brought forth critical questions as to their use in identifying individuals in need of special education, program placement decisions and selection of treatments. In many states, within industry and public employment, as well as public and private education, the use of tests to determine employability, classroom placement, eligibility for services and numerous other activities has been limited or dropped entirely (Griggs vs. Duke Power Company, 1971; Lau vs. Nichols, 1974; P. vs. Riles, 1975) (Sabatino and Miller 1979; Practising Law Institute, 1973). To this date, inappropriate tests are being used and considerable measurement error has followed, resulting in improper placement, exclusion, stigmatization and other attrocities toward the handicapped and minorities. The use of multiple measures of individual functioning has been advocated to overcome inappropriate procedures in the administration of tests, yet this will not overcome the use of inappropriate testing instrumentation in and of itself. Further improvement in the assessment methods that can be utilized with the handicapped and others is required if we are to be confident in the outcome measures provided for use in the numerous decisions that are made by special or vocational educators, or other human service providers.

Incompetent Administration -- Two primary manners in which incompetent administration of standardized assessment procedures take place can be stated. These manners are in terms of the level of training and experience that the practitioner has in administration and interpretation of the assessment measure; and in the social, cultural or personal attributes which the practitioner brings to the testing situation. Both of these aspects have extensive ramification on the performance of individuals on tests being administered to them. Lack of technical skills or lack of understanding of the test takers needs and frame of reference can bias results significantly (Sabatino and Miller, 1979).

A report issued by the Comptroller General of the United States (1976), entitled Training Educators for the Handicapped: A Need to Redirect Federal Programs, identified a number of teacher preparation needs that would enable the implementation of such legislative requirements as those posed under P.L. 94-142 and P.L. 94-482. Increased demand for special education teachers and specialists, changes in trends of use of supportive personnel, expanded teacher preparation programs and increasing needs of general academic and vocational teachers for specialized training in dealing with the handicapped were cited. Of high emphasis was increased in-service and pre-service training of educators (general and special) in procedures that would enhance integration of handicapped students into the regular classroom. Specific training was felt to be needed to enable teachers to:

1. Recognize, diagnose and assess the learning problems of the handicapped;
2. Prescribe and administer corrective curricula; and
3. Assess program results.

Further, citing of the increased emphasis on vocational education for the handicapped was evident as was the limited extent to which integrated ("mainstreamed") programming was being utilized for existing programs offered under the Vocational Education Amendments of 1968 (p. 29). Emphasis on this segregationist attitude and operations was emphasized in the earlier study by Olympus Research Corporation (1974), in which nearly 80% of the handicapped students in vocational education were identified as being trained in segregated programs. Whiteford (1978) conducted a study of home economics education programs at the secondary level in Minnesota, in which similar results were obtained in relation to the limited number of handicapped students actually being included in regular classroom settings.

High priority training needs of vocational educators (Comptroller General of the United States, 1976) were felt to orient on: attitudes toward the handicapped; understanding of the needs of the handicapped; and lack of specific training in areas of instruction for the handicapped.

An in-service training needs assessment was completed in Minnesota (Pucel, Schneck, Sulentic, Wilson and Zackrison, 1976) for secondary, post-secondary and adult vocational education instructional personnel.

Of high priority in each of these categories, for the numerous fields represented (agricultural, business, distributive, home economics and industrial education) were: methods of identifying special needs students; procedures for modifying curriculum, equipment and facilities to accomodate the handicapped; methods of counseling students; and utilization of supportive services.

Licensure requirements of special needs personnel in Minnesota AVTIs (Minnesota State Plan for Vocational-Technical Education, 1977), are documented and enforced for those entering into these positions. However, these requirements are fairly general and do not aid in the identification of individual competencies or training needs in alternative procedures of diagnostic-prescriptive education. Standardized diagnostic-prescriptive procedures could serve as a method for identifying licensure requirements and training needs for these personnel, although specific testing instruments would have to be selected for appropriateness of use with specific student characteristics and would then warrant further skill training by the practitioner. What is not needed is for other deficiencies to be brought about by standardizing procedures or lack of monitoring of adherance to these procedures. A review of research addressing the implementation of the Massachusetts Comprehensive Special Education Act of 1972 (Chapter 766), which served as a prototype for P.L. 94-142 (AMICUS, 1978), revealed that some educators attempted to ease demands placed on their time and resources by eliminating or standardizing procedures. The study stated that:

> They rationed the number of assessments performed.
>
> They neglected to conduct assessments; placed limits on

the numbers that were held; and ceased the scheduling of assessments in favor of children with behavior problems, (children) who were not likely to cost the school money, or who met the needs of school personnel seeking to practice their specialties. They rationed services by reducing the number of hours of assignment to specialists, by favoring group over individual treatment and by using specialists-in-training rather than experienced personnel as instructors.

Further, it was noted that paperwork requirements and procedures mandated by law were frequently bypassed. These procedures were felt in many cases to be ineffective and caused more paperwork to be performed than the mandated procedure would have.

Lack of Parental Involvement -- Traditionally, schools have limited the involvement which they have had with parents of handicapped students, resulting in a limited amount of information being provided about the students behaviors in other than school situations. Information relevant to accurate understanding of student needs and functional capacities is necessary for development of an appropriate individualized educational program. Parents can provide more information about the students performance in settings more appropriate to social, vocational and related functioning, than can be obtained during the students limited involvement in a school environment. Improper categorization of the student due to limited information and inaccurate perceptions, leads to the failure of the individualized education program to attend to the total persons needs. It is of vital necessity to include parents and significant others in the diagnosis of need, planning of services and implementation of the educational program that has been individualized for the student. This approach can aid in arriving at an appropriate treatment strategy based on individual need. Also, constitutionally guaranteed rights to privacy and the use of informed consent procedures are fundamental to this approach, thus satisfying some of the concerns previously voiced (Sabatino and Miller, 1979; Phelps and Wentling, 1977; Hull, Parrish and Hill, 1977).

Inadequacy of Special Educational Programs -- The Olympus Study (1974) and Sabatino and Miller (1979) have pointed out that there is a tendency for special educational programs in special and vocational education to become virtual "dumping grounds" for handicapped students. Once they have been assigned, their chance for return into the mainstream is almost nill. With the onset of the least restrictive environment movement, particularly with the numerous conditions and requirements placed on the development, implementation and monitoring of a students individualized education program, this situation has perhaps become somewhat mute. Parents have been given rights to be notified of assessments of their child, to challenge identification and assessment procedures, and to refuse the determination of placement arrived at by special education practitioners, as part of due process procedures and monitoring requirements.

Special education practices, particularly those of assessment and placement, have led to doubt in the efficacy of many of the procedures used. Lack of information pertaining to the outcomes of particular instructional strategies, limits in the reliability, validity and utility of measurement tools, and lack of critical components in programs of special education further add to this lack of faith in approach. Special education has been said to be made up of four component parts (Sabatino and Miller, 1979), including: specially trained professional educators; special curricular content; special methodology; and special instructional materials. Lack of any of these components decreases the potential quality of the special education services provided (Dunn, L., 1973). Within vocational special needs education, similar components are quite easily identified due to the nature of services being offered. There is a strong need to further assess the degree to which each of these components exist within vocational special needs education programs to improve the quality of service provided.

Placement Stigma -- Ysseldyke and Salvia (1974) and Ysseldyke (1973) have pointed out that diagnosis of individual need and identification for service is usually carried out by standardized testing procedures and classification by handicapping condition. This diagnostic labeling has been found to be highly controversial, since negative impacts such as stigmatization have taken place. The result is that the person is devalued and this is a major problem to solve once it takes place. Since present testing methodology has numerous identifiable problems, labeling and placement in programs based upon the use of inappropriate or inadequate measures can have a devastating impact. Due to the long range impacts of these labeling and placement practices, technical precision must be inherent in the assessment procedures used, which they are not. Improved diagnostic-prescriptive procedures have been called for and have resulted in the implementation of judicial requirements within the legislation forming the programs of agencies serving the handicapped (due process procedures) (Sabatino and Miller, 1979).

Perhaps the most significant outcome of all this controversy is the development of the Individualized Education Program (IEP) under the auspice of P.L. 94-142, the Education of All Handicapped Children Act of 1975. This approach to individualizing education for the handicapped individual is discussed in more depth in the following section.

Content and Concerns of the Individualized Education Program

Within the Education for All Handicapped Children Act of 1975 (P.L. 94-142), requirements for the implementation of the Individualized Education Program (IEP) for each handicapped child are specified. The primary purpose of this Act was:

> To insure that all handicapped children have available to them . . . a free, appropriate public education and related services designed to meet their unique needs, to assure that the rights of handicapped children and their parents or guardian are protected, to assist states and localities to provide for the education of all handicapped children, and to assess and assure the effectiveness of efforts to educate handicapped children.

The primary strategy toward satisfying this intent has been specified as the Individualized Education Program (IEP) and its subsequent provisions and parameters (Kendall, 1978; Orelove, 1978; Hull, Parrish and Hill, 1977).

The Individualized Education Program (IEP) is the first step in educating handicapped children in that it specifies educational objectives and strategies to be implemented on an individualized basis. It provides for instructional accountability and attempts to overcome many of the conditions which brought about exclusion of the handicapped from regular classes and public school programs. The National Association of State Directors of Special Education (NASDSE, 1976) stated that the IEP consists of:

> A written statement describing the educational objectives for and the services to be provided to each handicapped child. Educational objectives and services include both instruction and those related services required to meet the unique needs of the handicapped child and are derived from a careful evaluation of the child and his (her) environment. The elements included in the plan are statements of present educational performance, annual goals, short-term instructional objectives and services to be provided to meet these objectives, conditions under which services will be delivered (where, when and by whom) and evaluation criteria.

Further, they stated that this plan must proceed on two levels including:

> The total service plan - that plan which describes long term goals and strategies for both instructional and related services (and) the individual implementation plan - which states short term objectives and specific strategies for intervention (Sabatino and Miller, 1979).

This procedure utilizes a multi-disciplinary team of professionals, parents and the student whenever possible to develop an appropriate educational service plan. Inherent in this process is the assessment of individual capacities and needs and the prescription of appropriate program placements and supportive services as treatments.

No standardized procedure has been developed, implemented or mandated within the post-secondary level of vocational education programming to date. This procedure is currently only required for handicapped children between the ages of 3 and 21, or until completion of a secondary education program. However, there has been discussion of extending this procedure into post-secondary education programs and to individuals other than the handicapped. Present requirements of the Rehabilitation Act of 1973 (P.L. 93-112) require that a similar plan, the Individualized Written Rehabilitation Plan (IWRP), be developed by the vocational rehabilitation counselor with the active participation of the handicapped client. The provisions of this plan are similar to those of the IEP, including methods of monitoring and refinement. This practice has application to the post-secondary level of vocational education, particularly for handicapped individuals receiving services from both vocational education and vocational rehabilitation agencies.

Both of these practices (IEP and IWRP) place emphasis on the use of systemmatic diagnosis and prescription to develop and implement the individualized service plans.

At present, there are numerous conceptual models and specific methods that are used to implement these diagnostic and prescriptive processes (Fear, 1970; Sabatino and Miller, 1979; Albright, et al, 1978; Phelps and Wentling, 1976). No set concept, procedure or instrumentation are accepted as standard policy in providing services to the handicapped in post-secondary vocational education within Minnesota or elsewhere. Comparison of informational resources in the fields of special education, vocational rehabilitation and vocational education was undertaken to arrive at a more definitive categorization scheme for comprehensive diagnosis and prescription for potential application at the post-secondary level of vocational education. The full utility and appropriateness of categories must be derived through additional research, coordination and collaboration between and within human service agencies, and in on-going use of these schemas by personnel who provide direct services to handicapped individuals. Standardization of diagnostic and prescriptive categories can aid in the identification of appropriate service plans for handicapped students, when supplemented by adequate regulations and continued monitoring of adherance.

It is readily apparent that comprehensive assessment of the handicapped students functioning and need is important to the development of an appropriate IEP. The National Association of State Directors of Special Education (1976) specified guidelines pertaining to the dimensions that should be addressed by the diagnostic and prescriptive process including:

1. Educational functioning
    a. achievement in subject area
    b. learning style
    c. strengths and weaknesses
2. Social-emotional functioning
    a. social/psychological development
        attending/receiving
        responding
        valuing
        organizing
        characterizing
    b. self-help skills
3. Physical functioning
    a. visual
    b. hearing
    c. speech
    d. motor/psychomotor
        gross motor
        fine motor
        medical health
4. Cognitive functioning
    a. intelligence
    b. adaptive behavior
    c. thinking processes
        knowledge

comprehension

application

analysis

synthesis

evaluation

5. Language functioning
    a. receptive
    b. expressive - to what kind of input
    c. nonverbal
    d. speech
6. Family
    a. dominant language
    b. parent-child interactions
    c. social service needs
7. Environment
    a. home
    b. school
    c. interpersonal
    d. material

(Sabatino and Miller, 1979)

An intensive attempt was made by Dudek and others (1977), in an inter-disciplinary project conducted at Texas Tech University, to investigate the functional aspects of handicapping conditions impacting on individuals and the resources that are available to remediate the conditions. In the study, a comprehensive approach to functional identification and assessment of individuals with handicaps, particularly those who were severely handicapped took place. A multi-dimensional matrix (Figure 2.1) was developed to portray the major dimension of interaction that impact upon the handicapped individuals ability to function in life activities. Characterized by these dimension were 14 separate disabilities that were evaluated in terms of 5 major dimensions of life functioning. These life functions by disability interactions were then assessed in terms of major dimensions of rehabilitation (generic) technologies that were available or yet to be developed to correct deficiencies and thus increase individual functional capacities. Although the specific disability types are not important to this study (although the reader may wish to refer to the Dudek study for further explanation), the descriptions and categories of life function and rehabilitation technology offer a broad base of information useful in later investigation of potential diagnostic and prescriptive service categories.

In general, life function categories included in the Dudek study (1977) were:

1. Health-related functioning

   This category includes normal physical well-being and normal activity in sustaining life and coping with pain

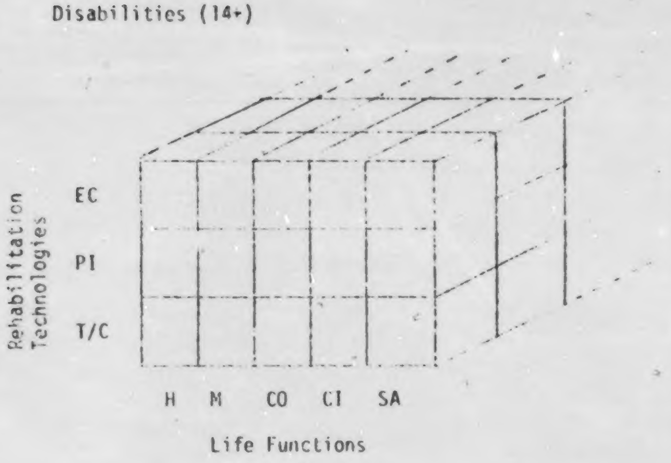
2. Mobility functioning

   This category includes normal ability and behavior in mobility, both in the use of manual skills and locomotion in living and working environments, and in movement from one geographic place to another

FIGURE 2.1

MULTIDIMENSIONAL MATRIX OF LIFE FUNCTIONS (5)

X REHABILITATION TECHNOLOGIES (3) X DISABILITIES (14)



Disabilities (14+)
Rehabilitation Technologies
EC
PI
T/C
H
M
CO
CI
SA
Life Functions

Code Key

Rehabilitation Technologies (3)	Life Functions (5)
EC=Environmental Change PI=Physical Intervention T/C=Training/Counseling	H=Health M=Mobility CO=Communications CI=Cognitive Intellectual SA=Social Attitudinal

Source.

Dudek, R. A. (Project Director) Human Rehabilitation Techniques: A Technology Assessment. Lubbock, Texas: Texas Tech University, 1977.

3. Communication functioning

This category includes normal ability and behavior in sending and receiving messages

4. Cognitive and intellectual functioning

This category includes normal ability and behavior in intelligently manipulating symbols and objects

5. Social and attitudinal functioning

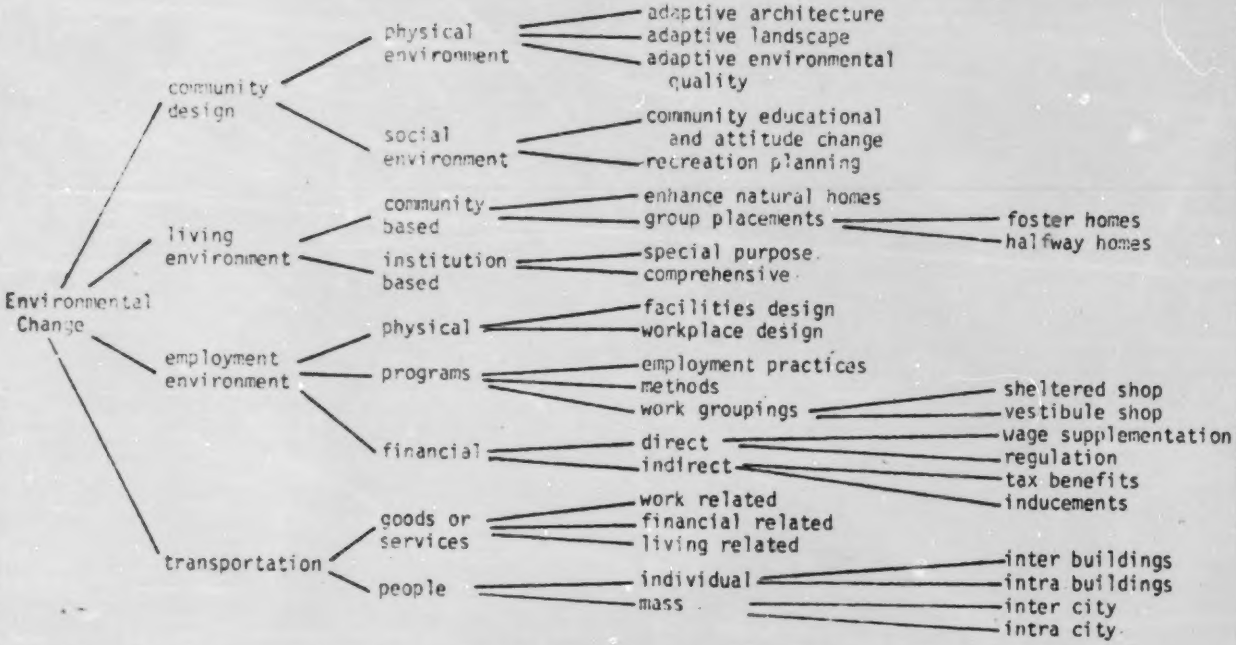
This category includes normal ability and behavior in relating to other people, as well as normal ability and behavior in self-acceptance

For each of these dimensions, with each of the handicapping conditions impacting, interaction with three (3) major rehabilitation technology levels was assessed: environmental change; physical intervention; and training/counseling. The sub-dimensions assessed for each disability within these technology levels were quite complex (Figures 2.2 to 2.4). Emphasis within this analysis was upon the interaction between (1) the functional limitations placed upon the individual by the handicapping condition present and (2) the various rehabilitation techniques necessary to correct these deficiencies. Although a full discussion of the procedures and results of this assessment reach beyond the limits of this particular study, the interactive matrix developed is extremely useful in assessing the comprehensive needs of handicapped individuals.

To efficiently and effectively assess an individual's functioning on each of these dimensions, or to determine those dimensions which

FIGURE 2.2

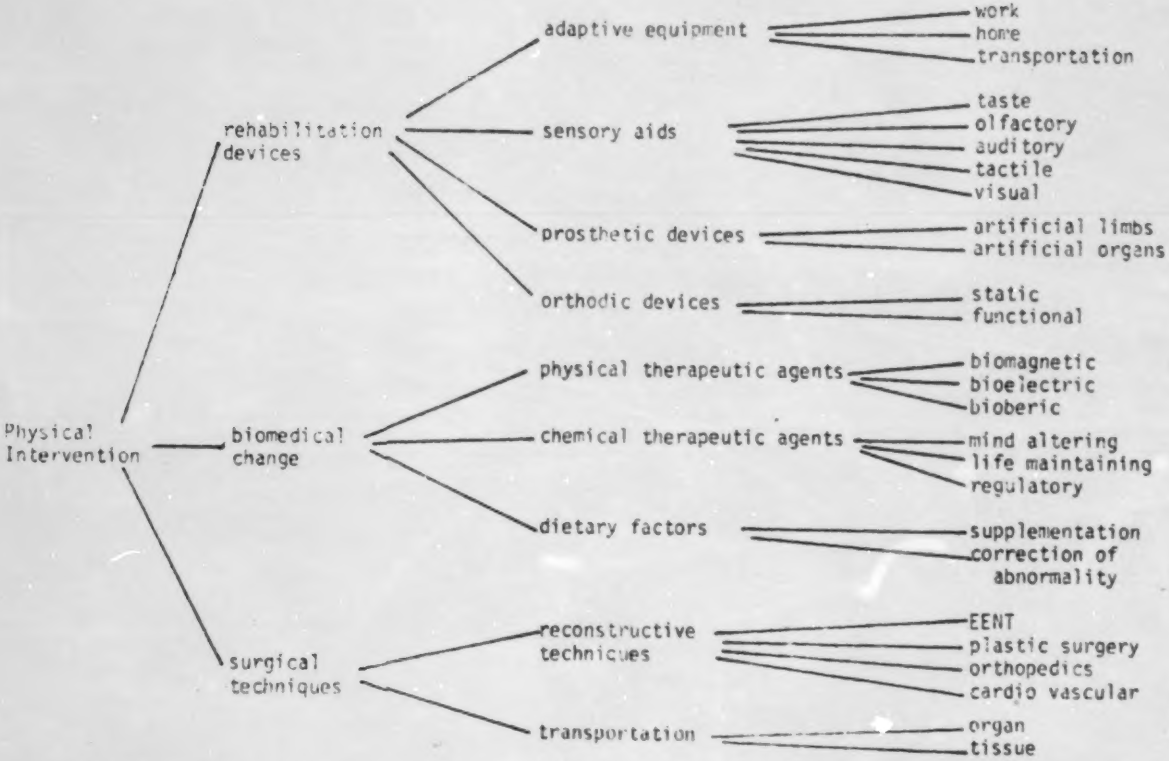
TREE DIAGRAM: TECHNOLOGY LEVELS FOR ENVIRONMENTAL CHANGE


Environmental Change
community design
physical environment
adaptive architecture
adaptive landscape
adaptive environmental quality
social environment
community educational and attitude change
recreation planning
living environment
community based
enhance natural homes
group placements
foster homes
halfway homes
institution based
special purpose
comprehensive
employment environment
physical
facilities design
workplace design
programs
employment practices
methods
work groupings
sheltered shop
vestibule shop
financial
direct
indirect
wage supplementation
regulation
tax benefits
inducements
transportation
goods or services
work related
financial related
living related
people
individual
mass
inter buildings
intra buildings
inter city
intra city

Source: Dudek, R. A. (Project Director) Human Rehabilitation Techniques: A Technology Assessment. Lubbock, Texas: Texas Tech University, 1977.

FIGURE 2.3

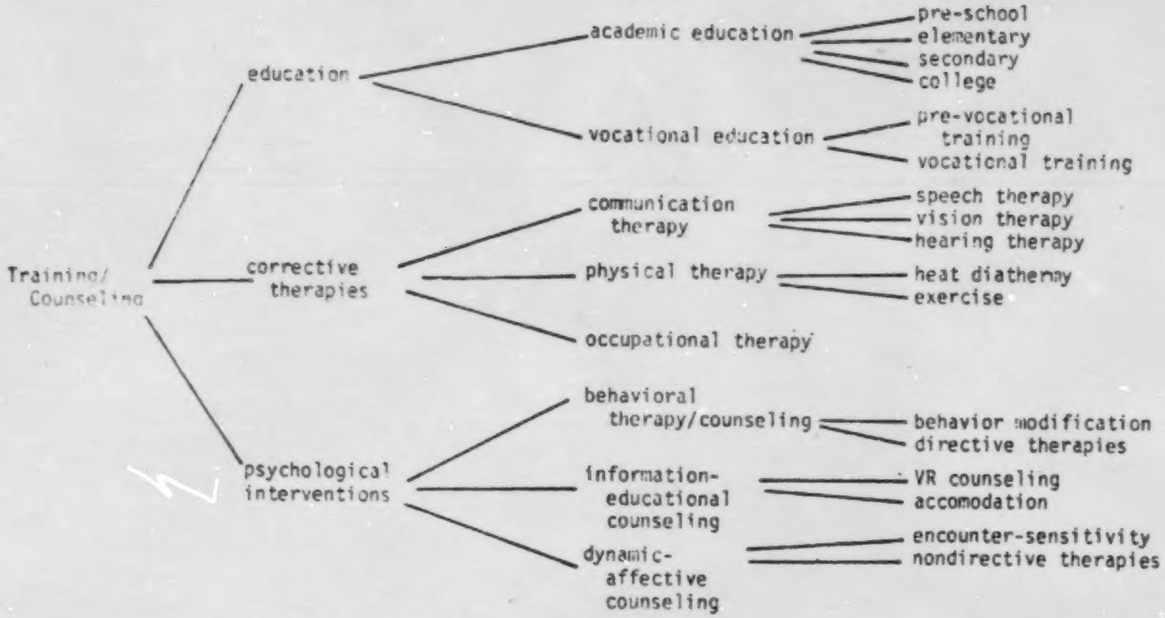
TREE DIAGRAM: TECHNOLOGY LEVELS FOR PHYSICAL INTERVENTION


Physical Intervention
rehabilitation devices
biomedical change
surgical techniques
adaptive equipment
sensory aids
prosthetic devices
orthodic devices
physical therapeutic agents
chemical therapeutic agents
dietary factors
reconstructive techniques
transportation
work
home
transportation
taste
olfactory
auditory
tactile
visual
artificial limbs
artificial organs
static
functional
biomagnetic
bioelectric
bioberic
mind altering
life maintaining
regulatory
supplementation
correction of abnormality
EENT
plastic surgery
orthopedics
cardio vascular
organ
tissue

Source: Dudek, R. A. (Project Director) Human Rehabilitation Techniques: A Technology Assessment. Lubbock, Texas: Texas Tech University, 1977.

FIGURE 2.4

TREE DIAGRAM: TECHNOLOGY LEVELS FOR TRAINING AND COUNSELING


Training/
Counseling
education
academic education
pre-school
elementary
secondary
college
vocational education
pre-vocational training
vocational training
corrective therapies
communication therapy
speech therapy
vision therapy
hearing therapy
physical therapy
heat diathermy
exercise
occupational therapy
psychological interventions
behavioral therapy/counseling
behavior modification
directive therapies
information-educational counseling
VR counseling
accomodation
dynamic-affective counseling
encounter-sensitivity
nondirective therapies

Source: Dudek, R. A. (Project Director) Human Rehabilitation Techniques: A Technology Assessment. Lubbock, Texas: Texas Tech University, 1977.

most heavily impact upon success and participation in vocational education programs is difficult both in concept and practice. Methods of assessment and specific prescriptive services vary in their relative costs, expertise to use and administer, applicability to specific handicapping conditions, and the level of development that the technique has reached (Hively and Reynolds, 1975; Botterbusch, 1976; Esser, 1975).

Diagnostic and prescriptive processes and services need to be conceptualized and developed for implementation in vocational education practice, to adequately address the comprehensive needs of handicapped individuals and to provide a means to offer equal educational opportunity. However, there are numerous concepts and technologies available to the vocational special needs practitioner, pertaining to the diagnostic and prescriptive process. These alternatives may be found in research, journal articles, texts and practices of such fields as special education, public welfare, vocational rehabilitation, industrial psychology, to name but a few. The next section attempts to provide a summary of a number of approaches to diagnosis and prescription.

Models and Categories of Diagnostic and Prescriptive Services

A fully operational and functional assessment strategy has not as yet been developed. However, numerous types of procedures have been developed to assess individual functioning on dimensions relevant to vocational, educational and other life functions in which the person participates. Operational definitions for the terms diagnosis, assessment and prescription as used in this study have been previously provided. However, further expansion of these definitions becomes necessary to aid in comprehension of the various educational contexts in which they are applied.

Diagnosis -- Fearn (1970) completed an extensive study of alternative models of educational diagnosis that were existent up until 1970. Much controversy was found in the understanding of individual practitioners as to what the exact meaning of the term "diagnosis" was. Many descriptors were found in the ERIC Thesaurus, that were utilized in describing it including: psychoeducational diagnosis, diagnostic teaching, clinical teaching, educational therapy, prescriptive teaching, diagnostic/prescriptive teaching, scientific teaching, and individualized instruction.

Although the word is heavily used in medical practice, signifying the process of investigating the source(s) of physcial, mental or emotional dysfunction or difficulty; educational practice places a different slant on its scope. Within an educational setting, diagnosis concerns the multitude of manners in which the individual student's needs are determined.

Assessment -- The term assessment, although it closely resembles that of diagnosis, focuses on the measurement of individual abilities, interests, needs and capacities. Its full meaning is more aptly portrayed by the purposes for which it is directed. Assessment is highly dependent on forms of testing, including standardized psychometric instruments; medical procedures; performance tasks; and behavioral observations. The format used for assessment is directed by the purpose(s) for which it is undertaken. Hill and Bruininks (1977) in discussion of the adaptive behavior characteristics of mentally retarded persons state that

> Assessment may be done for the purpose of describing an individual. In this case the degree of detail and areas of content can be arbitrarily decided upon depending upon how much descriptive information is sought.

This purpose is relevant to the initial phases of identification, in which the person in need of service(s) or wishing to participate in a regular vocational education program are identified.

However, the second purpose presented (Hill and Bruininks, 1977) is perhaps more relevant to the provision of appropriate vocational special needs educational services. In their discussion of behavior measurement they stated

> The purpose of evaluating an individual's relative abilities as a basis for developing an instructional program. These assessments usually require a greater amount of detail in order to obtain an exact measure of an individual's current ability, including relative strengths and weaknesses, so that a training program can be devised and subsequent progress identified.

Nevertheless, both purposes and terms orient themselves on the use of tests and related evaluation procedures. Hill and Bruininks (1977) found that there was "no absoluate distinction between assessment devices intended for descriptive purposes" and those intended for use in the development of "individualized training programs." In most cases, the depth of material sought and the amount of time required to administer the procedures is a significant differentiator between the two.

Over the past few decades, the purposes of testing have changed, as reflected by Glaser (1973) when he stated that

> (Testing) . . . will become an integral part of the educational process itself. For instructional purposes, tests will be interpreted in terms of performance criteria so that student and teacher are informed about the student's progress relative to standards of competence, and in this way, provide information for deciding on an appropriate course for instruction (Hively and Reynolds, 1975).

Prescription -- Literally, the term prescription is derived from the terms prescribe, meaning to "write before-hand", and prescriptive, meaning to "set down the direction." Prescriptive teaching provides a relevant context in which to view this term, as it is defined by Peter (1965)

> Prescriptive teaching is a method of utilizing diagnostic information for the modification of educational programs for children with problems. It accomplishes this purpose by determining the educational relevance of the child's disability, and devising teaching procedures to yield desireable changes in the child's academic progress, emotional condition, and social adjustment.

The prescription of appropriate educational interventions for the handicapped, is strongly dependent on appropriate diagnosis and assessment since

> If modification of teaching is made for the handicapped child and these modifications are based upon a diagnosis of the child's difficulty, the diagnosis prescribes the modification of teaching. If diagnosis does not help determine the direction of teaching, it has little value educationally.

Models of Educational Diagnosis

Sabatino and Miller (1979), Fearn (1970) and numerous others have reviewed a significant number of models that are used to conceptualize diagnostic-prescriptive procedures for use with handicapped and non-handicapped students in educational environments. Several of these models are summarized here, to provide a conceptual base for further development of a model for implementation in post-secondary vocational education programs.

Dunn's Model -- Within the diagnostic model developed by Dunn, several step-by-step procedures were included. These steps are: study of the child's behaviors on various dimensions; samples of sequential programming are then designed to aid the child in progressing toward objectives, wherein the treatment actually becomes the diagnostic tool; and then the results of the treatment, after an appropriate prescription has been formulated in terms of a sequential program, are communicated to other instruction personnel who will carry it out to termination. Modification of the sequential program/prescription is sometimes necessary, taking place through reappraisal and redirection. Many of these aspects have been implemented into the procedures of the Individualized Education Program (IEP) under P.L. 94-142, the Education of All Handicapped Children Act of 1975.

Quay's Model (1968) -- Provided a conceptual framework upon which assessment of exceptional children on educationally relevant variables may take place. The modifications to environments that take place (prescription) are based upon defined input, response and reinforcement interactions that have been included in the model. It provides an organizational structure for the collection of data required in the development of an IEP. Further, it may assist in identifying areas of strength or weakness for the individual and may aid in tests of hypothesis about the student's functional capacities.

Iscoe's Model (1972) -- Iscoe developed a systematic model of diagnosis, based upon three domains of classification, each having three function and/or performance-based considerations within them. These domains are

1. Physical domain
    a. Visability - the child's appearance
    b. Locomotion - the ability to move around
    c. Communication - oral language or other communication skill

2. Perceived adjustment domain
    a. Peer acceptance - how well does (s)he get along with peers
    b. Family interaction - consistent dynamics of relationships among family members
    c. Self-esteem - self-concept, feeling toward self
3. Educational domain
    a. Motivation - to work at the suggestion of the teacher
    b. Academic level - actual school performance
    c. Educational potential - projected school performance based on intelligence tests or other measures

Rating forms and profiles useful in planning and communication are provided as operational features of this model. Training in the use of the materials and the model are available so that it may be properly administered and utilized.

Hickey and Hoffman's Model (1973) -- Strongly advocates the achievement testing approach to educational diagnosis. They feel that the following four aspects of function should be assessed: cognitive style (concrete/abstract); learning style (visual/auditory/kinsethetic); need for teaching structure (remedial/special class); and preferred mode of instruction (independent study/one-to-one/small and large group).

Once these dimensions are assessed, the data are then analyzed and prescriptive packages or activities are developed to account for the individual's diagnosis on each. Formal (e.g. standardized tests) or informal (e.g. behavioral observations) procedures of assessment can be utilized in all aspects of this model.

Caterall's Model (1970) -- A model with diagnostic implications was posed by Caterall, which included major aspects of: directness of approach (direct or indirect intervention); and focus of approach (environmental or personal interaction plane). The diagnostician is assisted through the use of a taxonomy, to evaluate influential factors of learning (e.g. role of teacher, role of support personnel, classroom environment, directness or indirectness of intervention). It has implications for the IEP process, due to its ease of use, understandability and practicality in formulating service plans. It accomplishes this by addressing aspects of what is to be done, who is to do it, and how it is to be done, at each of three stages (Sabatino and Miller, 1979).

Additional models of educational diagnosis and learning processes were encountered, too numerous to mention in this review. About twenty additional models were reviewed and found to differ in terms of the dimensions being manipulated (personnel, functional capacities, materials or interventions to be used), specificity, complexity, and ease of implementation into practical settings (Fearn, 1970). The models briefly reviewed in this study are perhaps the most general and differentiated ones, in comparison to the entire list that was uncovered. For this reason, this discussion has been limited.

As was mentioned, many of these models are dependent upon the availability of certain types of personnel or support services. They are likewise characteristic of more elementary and secondary education program approaches, in terms of personnel, available services and intended outcomes. Little research or description of diagnostic-prescriptive services at the post-secondary level is evident in terms of in-depth understanding of process, philosophy and outcomes desired of the diagnostic model. Within this study, the development of _a_ diagnostic-prescriptive model may be presumptuous, since many conceptual models may be operationalized in fact by individual practitioners or post-secondary vocational education institutions. For these reasons, focus is made upon the techniques that are used to diagnose needs and the interventions that are prescribed to satisfy these needs. These methods and categories of diagnostic-prescriptive services are then weighedout as they satisfy the numerous dimension of functional capacity that are relevant to the handicapped individuals participation in vocational, educational and social environments (Dudek, et al, 1978).

Diagnostic-Assessment Methods

Standardized testing procedures and behavioral observations are utilized to investigate many of the life function dimensions of concern to practitioners who are assisting handicapped individuals in various aspects of life (Botterbusch, 1977; Esser, 1972; Munger, et al, 1977). Although many of these techniques originally took the form of paper-pencil tests, recent developments and refinements of performance based tests (e.g. work samples or job samples), improved behavioral observation procedures, and relevant criteria for comparison of individual function (e.g. job and task analysis) have been accepted through impact of Equal Employment Opportunity and Affirmative Action programs developed through Federal support.

In assessing the dimensions of life function relevant to this study, a whole person viewpoint was taken, in which total life roles specifically impacting upon participation and succes in vocational education is constantly taking place. Munger, et al (1977), described a fairly extensive listing of dimensions on which individuals should be assessed to identify their abilities, interests, needs and capabilities. This listing was used (Figure 2.5) for further assessment and identification of appropriate diagnostic information types that could be standardized for this study (Table 2.1). Specific identification of techniques useful in assessing the personal needs and attitudes of handicapped individuals is observably lacking in this list, mostly due to the lack of valid, reliable and usable tools or procedures at the present time. These techniques will have to be considered for addition to the diagnostic-assessment method listing once the technology has been developed.

Many articles. research studies and pieces of legislation were

FIGURE 2.5

PROFILE OF CLIENT ABILITIES

Dimension	Category
LIFE SITUATION STATUS	Current Living Arrangements
	Current Economic Status
	Physical-Medical Status
	Legal Status
	Motivation for Employment
EMPLOYABILITY STATUS	Capability for Making Independent Career Choice
	Capability to Live Independently
	Local Mobility
	Relocation Mobility
	Employment Processability
COGNITIVE ABILITIES	Language Capability
	Mathematics Capability
	Perceptual Reasoning Capability
REASONING CAPABILITIES	
INTEREST, ATTITUDE, MOTIVATION	
HUMAN RELATIONS CAPABILITIES	
SITUATIONAL ADJUSTMENT-TEMPERMENT	
WORKING CONDITION ADJUSTMENT-TEMPERMENT	
SENSORY CAPABILITIES	
PSYCHOMOTOR CAPABILITIES	
PHYSCIAL CAPACITIES	
KNOWLEDGE AND MEMORY CAPACITIES	

TABLE 2.1

DIAGNOSTIC INFORMATION TYPES

Altfest, 1975	Brolin, 1976	Coker, 1976
Health Information-- Medical Nature of Handicap Physical Capacities Environmental Conditions Psychological Information -- Intelligence Test Interest Inventories Aptitude Scores Personality Profiles Perceptual-Motor Test Educational Information -- Course Grades Performance Sheets Anecdotal Records/ Observations Attendance Records Reading/Math Tests Social Information -- Interpersonal Relations Personality-Behavior Characteristics Personal Care Attitudes to Peers Work Experience Information -- OJT Performance Physical Stamina Work Attitudes Prior Work Experience	Vocational Evaluation-- Medical Social Educational Psychological Work Evaluation -- Vocational Tests Work/Job Samples Situational Assessment Work Eval. Systems Work Adjustment -- Counseling Individual & Classroom Instruction Situational Work Experience Behavior Modification Precision Teaching On-the-job Tryouts Background Information -- Work History Vocational Training Intellectual, Academic & Psychological Vocational Interests & Needs Medical Considerations Learning Characteristics Specific Strengths & Weaknesses Avocational Interests, Hobbies & Skills	Medical -- Cardiovascular Gastro-intestinal General Medical Neurological Orthopedic Psychiatric Respiratory Speech & Hearing Urological Visual Other -- Educational History Psychological Social History Verification of Employment Vocational Evaluation Casenotes

TABLE 2.1 (Continued)

DIAGNOSTIC INFORMATION TYPES

Phelps & Wentling, 1977	SURGE, 1972	Estes, 1974
Record of Handicap/Disadvantage	Education --	Education
Learners Functional Abilities/Disabilities--	Academic Levels	Language Difficulties/Skills
Psychomotor/Physical Skills	Interests	Health Limitations
Perceptual Skills	Abilities	Legal Barriers
Communications Skills	Vocational/Work Evaluation	Military Status
Social Skills	Psychological Services	Age
Cognitive Skills		Motivation
Quantitative Skills		Work History
Data & Information Sources-		Transportation
Performance Observations		Child Care Needs
Diagnostic/Prescriptive Assessment		Job Market Factors
Psychological Assessment		Miscellaneous
Teacher Report/Referral		
Parent Communications		
School Achievement/Attendance Reports		
Medical Examination		
Work Sample Evaluation Record		
Visual or Hearing Exam		
Social Service Agency Referral		

TABLE 2.1 (Continued)

DIAGNOSTIC INFORMATION TYPES

Franken, 1977	Phelps, 1974	Nadolsky, 1971
Cognitive Functioning Capacities --	Quantitative/ Numerical Skills	Vocational Evaluation
Individual Intelligence	Verbal Skills	Medical Information
Achievement Levels	Cognitive Skills	Social Information
Areas of Talent	Perceptual Skills	Psychological Testing
Grade Placement	Language Skills	Educational Information
Course Achievement	Psychomotor/Physical Skills	Economic Status
Affective Characteristics	Social Skills	Employment History
Community-Student Impediments	Occupational Interests	Interviews
Educational Needs		Staff Conferences
		Occupational Information
		Vocational Counseling
		Conferences with Staff

TABLE 2.1 (Continued)

DIAGNOSTIC INFORMATION TYPES

Munger, 1974	Salvia & Ysseldyke, 1978
Life Situation --	Achievement Tests
Current Living Arrangements	Diagnostic Tests
Economic Status	Intelligence Tests
Physical/Medical Status	Perceptual-Motor Tests
Legal Status	Sensory Acuity
General Motivation for Employment	Language Skills
	Adaptive Behavior
General Employability and Function	Personality Profiles
Ability-Independent Career Choice	
Ability to Live Independently	
Local Mobility	
Freedom to Relocate	
Ability to go thru Employment/ Training Programs	
Individual Capabilities--	
Cognitive Capabilities	
Reasoning Capabilities	
Interest, Attitude & Motivation	
Human Relations Capabilities	
Temperments	
Work/Classroom Conditions	
Sensory Capabilities	
Psychomotor Capabilities	
Physical Capabilities	
Knowledge and Memory Capabilities	

investigated to identify categorization schemes for portraying the wealth of diagnostic information that would or could be collected. Sources within vocational rehabilitation (Coker, et al, 1976; Nadolsky, 1971), special education (Brolin, 1976; Ysseldyke and Bagnato, 1976), social welfare (Munger, et al, 1977; Estes, 1974), and vocational education (Altfest, 1975; Phelps and Wentling, 1977: Suggested Utilization of Resources and Guide to Expenditures, 1972; Franken, 1977; and Phelps, 1977) were investigated for categories of diagnostic information and portrayed in tabular form for comparison (Table 2.1).

Prescriptive Educational Support Services

Although numerous potential program and service offerings have been identified in the laws (P.L. 94-482; P.L. 94-142; P.L. 93-516), regulations, and supporting documentation (SURGE, 1972), within vocational education there is no concise format of standard program types, modifications or special educational supportive services for use in post-secondary programs.

Analysis of the major legislation and communications between Federal agency Commissioner's (Boyer and Humphrey's, 1977) offered the types of programs and services fundable under specific laws, presented in Table 2.2. Although authority for expenditure of funds for these services may exist within each piece of legislation cited, not all are placed into operation for reasons such as: (1) limited fund availability; (2) lack of trained professionals; or (3) different priorities being placed upon the service provider because of the specific law mandating some aspects and merely permitting others.

TABLE 2.2

POTENTIAL SERVICES FOR THE HANDICAPPED THROUGH EDUCATION AND REHABILITATION AGENCIES

Public Law 94-142 (Special Ed)	Public Laws 93-112 & 93-516 (Vocational Rehab)	Public Law 94-482 (Vocational Ed)
Career Awareness	Evaluation of Rehabilitation Potential	Vocational Education & Specific Job Preparation
Career Exploration	Counseling & Guidance	Industrial Arts & Consumer and Homemaking Education
Pre-vocational Skill Development	Physical & Mental Restoration	Cooperative Vocational Education
Basic Academic Skill Development	Vocational Training and Other Training -- (Pre-vocational, personal and vocational adjustment, work experience, books, tools, materials, related training)	Placement Services
Auxiliary Aids, Reader Services for the Blind, Interpreters for the Deaf	Maintenance --	Vocational Guidance & Counseling Services
Job Seeking, Getting & Holding	Transportation in conjunction with vocational rehabilitation services	Follow-up Services
Staff Development Activities	Services to the family of the handicapped	Curriculum Development & Modification
Career and Vocational Training	Telecommunications, sensory & other technological aids and devices	Equipment Modification
Work Study Programs		

TABLE 2.2 (Continued)

POTENTIAL SERVICES FOR THE HANDICAPPED THROUGH EDUCATION AND REHABILITATION AGENCIES

Public Law 94-142 (Special Ed)	Public Laws 93-112 & 93-516 (Vocational Rehab.)	Public Law 94-482 (Vocational Ed)
	Recruitment and Training Services	
	Placement in Suitable Employment	
	Post-employment & 'Follow-along' Services	
	Occupational Licenses, Tools, Equipment, Initial Stocks & Supplies	
	Other Goods & Services	

Source: Boyer and Humphrey's, 1977.

Further analysis of journal articles, research studies and commentary of various human service fields, was undertaken to identify categorization schemes and content. The fields of vocational rehabilitation (Coker, et al, 1976) and vocational education (Altfest, 1975; Special Needs Assessment Project - SNAP, 1977; Suggested Utilization of Resources and Guide to Expenditures, 1972; Schneck, Lerwick and Copa, 1978) were investigated due to similarities which exist in the types of services offered within their programmatic operations, the type(s) of clientele served (handicapped and similar age ranges), and manners by which data are collected within each of the respective state agencies in Minnesota.

Categories of prescriptive program and service types were identified for a number of resources reviewed for the study (Table 2.3). Considerable variability was readily observed in the categories used, across these structures. Depending upon the (1) objectives for which the structure was devised, (2) context in which it was applied and (3) resources which were available, any of these listings may fall short of providing a comprehensive structure of potentially needed services for a handicapped individual. Further, many of these listings extend beyond direct services to the handicapped and into such aspects as program evaluation or in-service education for practitioners.

A study by Schneck, Lerwick and Copa (1978) attempted to identify a fairly exhaustive and exclusive listing of program placements, modifications and supportive services. This format of services, as with many others, has yet to stand the trials of application under various conditions, particularly in post-secondary vocational education for the handicapped.

TABLE 2.3

PRESCRIPTIVE PROGRAM AND SERVICE TYPES

Altfest, 1975	Coker, 1976
Modifications to Existing Programs --	Medical Treatment & Prosthetic Devices
Longer/shorter school day	Psychotherapy Psychiatrist Psychologist
Longer/shorter time for course completion	Guidance and Counseling
Homebound Instruction	
Dropping class/ Doubling up on others	Assessment and Testing
Buddy system	Work Adjustment Training
Additional Services --	Educational Remediation
Counseling Testing	Skill, Job or Vocational Training
Job Placement/Follow-up	Technical or Professional School
Paraprofessional Assistance	Placement and Follow-up
Interpretor for the Deaf	Competitive Employment Sheltered Employment
Reader for the Blind	
Bilingual Instruction	Other
Remedial Reading and Mathematics	
Teaching Methods & Approaches Teaching Materials	
(Suited to learning styles of the student)	

TABLE 2.3 (Continued)

PRESCRIPTIVE PROGRAM AND SERVICE TYPES

Special Needs Assessment Project (SNAP), 1977	Suggested Utilization of Resources & Guide to Expenditures, 1972
Technical Tutoring	Advisory/coordinating committees
Remedial Math Tutoring	Survey/evaluations
Remedial Reading Tutoring	Recruitment/promotional activities
Job Seeking/Job Keeping Skills Training	Identification of Handicapped students -
English as a Second Language	Counseling services for student/family
Self-Instruction	Preparation of diagnostic/evaluation tools
Testing-Assessment	
Career Exploration/Training Tryout	Educational testing - academic level, interest & abilities
Modification of Curriculum and/or Educational Environment	Vocational/work evaluation
	Staff Development
Interpretor for the Deaf	Scheduling Modifications -
Orientation-Mobility Training	Extension of school day, week or year Additional semester Individual instruction Open entry/exit-Flexible scheduling
Placement Assistance	
Counseling/Referral to Others	Curriculum modifications Additional time to develop skills Specially designed work books/texts Task analysis to aid in modification of instruction, equipment or methods
Pre-vocational Training	
Transportation	
Others	Curriculum Development
	Research, exemplary or development project Contracted services Salaries Individual Learning Packages

TABLE 2.3 (Continued)

PRESCRIPTIVE PROGRAM AND SERVICE TYPES

Schneck, Lerwick & Copa, 1978

Regular Vocational Program

- Environmental Modifications-
  - Architectural Barriers
  - Tool/Equipment Modifications
  - Special Audio-visual Equipment
- Curriculum Modification-
  - Alternative lessons and reading materials
  - Supportive Audio-visual Materials
  - Alternate Forms of Performance Assessment

Special Vocational Instruction-
Prev-vocational Education

- Special class setting
- Pre-vocational Orientation
  - Work Experience
  - Cooperative Vocational Education
  - Work Study

Special Educational Support Services -

- Remedial Instruction -
  - Math
  - Reading
  - Technical skills
  - Socialization skills
  - English as a second language
  - Bilingual
- Vocational Guidance -
  - Career guidance
  - Career exploration
- Counseling-Testing Services -
  - Personal counseling
  - Testing-assessment
  - Referral to outside agency
  - Vocational evaluation
  - Related medical diagnosis/prognosis
  - Evaluation-follow-up

Special Educational Support Services - (Continued)

- Employability Skills Training-
  - Job seeking/keeping skills
  - Placement Assistence
- Communication Skills -
  - Writing skills
  - Language instruction
  - Speech/language therapy
  - Sign language
- Special Transportation, Facilities & Services -
  - Mobility training
  - Special vans/Adaptive vehicles
  - Public conveyance
  - Work conveyance
- Special Educational Equipment, Services & Devices -
  - Ramps,rails,controls,hardware
  - Outreach programs
  - Out-school support
  - Placement/follow-up
  - Instructional aids
  - Individual instruments
- Reader and Interpretor Services-
  - Interpretor for the Deaf
  - Reader for the Blind
  - Interpretor/Bilingual
  - Speech Impairment/Bilingual
- Other Direct Educational Support Services -
  - Job-training site payments
  - Student clubs
  - Purchase of tools
  - Tuition waivers/Financial aids
  - Recruitment/Outreach

TABLE 2.3 (Continued)

PRESCRIPTIVE PROGRAM AND SERVICE TYPES

Schneck, Lerwick & Copa, 1978 (Continued)

Special Educational Support Services - (Continued)

- Other Non-direct Educational Support Services -
  - Maintenance
    - Food
    - Clothing
    - Travel
    - Half-way House
  - Prosthetic Device Purchase
  - Medical-Dental Assistance
  - Adaptive Home Equipment
  - Animal/Human Aides and Companions

Development of usable diagnostic and prescriptive service schemes for practitioners, which are responsive to the comprehensive needs of individual students, can aid in the future development of educational opportunities for the handicapped. This study serves to further this effort, by applying diagnostic and prescriptive service schemes to handicapped students, under simulated conditions, with vocational special needs educators who provide direct services in Minnesota's Area Vocational-Technical Institutes (AVTI s).

CHAPTER III

METHODS AND PROCEDURES

This study was designed to systematically investigate the processes used by post-secondary vocational special needs educators in working with students having handicaps and to assess how a variety of their personal characteristics influence these processes. The specific processes investigated were: (1) diagnosis of individual educational and vocational needs; and (2) prescription of appropriate program placement, modifications and supportive services that would aid in meeting these identified needs. Focus was made throughout this study on the practice of vocational special needs practitioners in Minnesota's Area Vocational-Technical Institutes (AVTI's).

Within Minnesota's AVTI network, a fairly elaborate system of vocational special needs services has been established. There are a substantial number of individuals who work in various phases of this service system, some of whom have specific job assignments relating to diagnosis and prescription for students with handicaps. It is the intent of this study to focus on the group of diagnostic-prescriptive service providers, within Minnesota AVTIs, in order to assess the degree to which individual practitioners vary in their use of individual student diagnostic information and prescriptive services in development of an initial IEP (Individualized Education Program). The purpose of this chapter is to discuss the development and implementation of research procedures used to address these issues.

Research Design

In terms of general approaches to research, this study may be classified as a controlled case study approach, as opposed to an experimental or ex post facto design (Isaac and Michael, 1971; Kerlinger, 1973). It is both descriptive and relational in nature in that it attempts to determine the factors surrounding, clarify the status of and identify potential influences on diagnostic-prescriptive education for handicapped students in Minnesota AVTIs. Interpretation of data gathered through the procedures is important to the development of adequate models of service provision. Additionally, it should aid in assessing the potential needs of systems established to enable handicapped students to participate and succeed in regular vocational education programs. The specific approach used in this study, a controlled case study, is appropriate for use in provision of information about specific individuals, in existing institutions and with concrete entitities. Through the use of simulated student case files, including much of the diagnostic information required on the individual and characteristics of the setting in which they are to be placed, each of the subjects of interest (special needs practitioners) can be studied with a significant degree of control. Through this procedure, the individual vocational special needs practitioner may be understood as a functional member of the group which provides these services to students with handicaps. As with most descriptive studies, it must be remembered that the outcomes of this research are limited to the description of present context within which diagnostic and prescriptive services are provided and are generalizable only to those practitioners participating at the most general level.

Selection of Subjects

The population included all those individuals assigned to the tasks of diagnosis and prescription for students with handicaps in Minnesota Area Vocational-Technical Institutes (AVTIs) during the 1978-79 academic year. Only those individuals employed in full-time positions were included in this group.

Individuals eligible for participation were identified through a number of sources, including lists provided by: Mr. Hal Birkland, Special Needs Supervisor, Minnesota Department of Education, Division of Vocational-Technical Education; Mr. David Kingsbury, Vocational Special Needs Program, Bemidji State University; the Minnesota Association of Vocational Education Special Needs Personnel (MAVESNP); and the Regional Directory of AVTI Special Needs Personnel in Southern Minnesota. As these listings did not specifically identify those individuals having diagnostic and prescriptive duties oriented toward the handicapped, they were mainly used in identifying contacts that could be made to further identify eligible participants. Table 3.1 indicates the identified numbers of individuals employed as vocational special needs practitioners in Minnesota AVTI's during 1978-79, as taken from these listings, telephone conversations and mailed communications with personnel at each facility.

Mailed communications (Appendix A) were sent to each of these identified vocational special needs practitioners, to further determine

Table 3.1

Number of Full-Time Vocational Special Needs

Employees in Minnesota AVTI's--1978-79

	Licensure Category				
AVTI	Supvr.[a]	Spt.Svc.Mgr.[b]	Inst-Eval[c]	Other [d]	Total
Albert Lea	1	1	-	1	3
Alexandria	1	-	-	-	1
Anoka	2	1	6	1	10
Austin	1	-	2	11	14
Bemidji[e]	1	-	-	-	1
Brainerd	1	-	2	2	5
Canby	1	-	1	3	5
Dakota County	1	-	-	2	3
Detroit Lakes[e]	1	1	-	3	5
Duluth	1	1	-	3	5
East Grand Forks	1	-	-	2	3
Eveleth	1	-	-	1	2
Faribault	1	-	-	4	5
Granite Falls[e]	1	-	-	3	4
Hibbing[f]	-	-	-	-	-
Hutchinson	1	-	-	9	10
Jackson[e]	1	1	-	7	9
Mankato	1	1	-	7	9
Minneapolis	1	2	-	5	8
Moorhead	1	1	4	-	6
Pine City	-	1	-	3	4
Pipestone[e]	1	-	-	-	1
Red Wing	1	-	1	5	7
Rochester	1	1	-	-	2
St. Cloud	1	-	-	4	5
St. Paul	1	7	1	25	34
Staples	1	-	-	-	1

Table 3.1 (Continued)

	Licensure Category				
AVTI	Supvr.[a]	Spt.Svc.Mgr.[b]	Inst-Eval[c]	Other[d]	Total
Suburban Henn.[e] County, North	2	-	-	-	2
Suburban Henn. County, South	1	4	-	7	12
Thief River Falls	1	-	-	1	2
Wadena[e]	1	-	-	-	1
White Bear Lake (916)	2	2	3	4	11
Willmar	1	1	3	8	13
Winona	1	-	-	2	3
Total	35	25	23	123	206

Note.

[a] Special Needs Supervisor.

[b] Support Service Manager.

[c] Vocational Instructor-Evaluator.

[d] Other--Including Technical Tutor, Remedial Related Instructor, Evaluator Aide, Interpretor, Bi-Lingual Instructor, etc.

[e] No response was received from AVTI to cross-check numbers derived from listings provided through the State Department of Education or other sources.

[f] No formal Special Needs program presently implemented.

which practitioners provide diagnostic and prescriptive services to handicapped students. Table 3.2 indicates the number of vocational special needs practitioners employed in full-time positions, who provide diagnostic and prescriptive services to handicapped students. Of 206 full-time vocational special needs practitioners employed in Minnesota AVTIs only 121 were identified as providing diagnostic and prescriptive services to handicapped students.

In view of limited number of practitioners identified as providing these services, it was the original intent of this study to include the entire group. However, due to numerous constraints, such as the lack of staff availability, travel restrictions, distance to data collection sites, personal decisions not to participate; the actual number of subjects included in the study was considerably less than desired. Each identified practitioner was requested to participate in the study by means of a letter (Appendix A) which was also used as the device to identify practitioners who provided diagnostic-prescriptive services in Minnesota AVTIs. Response rate to the letter was 40% with positive response toward participation equaling only 12%. Through telephone conversations with AVTI personnel and Minnesota Department of Education staff, further conflicts with participation were identified. The original intent of the study was to collect data at one central site during the conduct of a state and nationally attended meeting of the Minnesota and National Associations of Vocational Education Special Needs Personnel (MAVESNP/NAVESNP), which was scheduled to be held in late March in a suburb of Minneapolis. Two additional state-called meetings were to be held during the week prior and subsequent to the

Table 3.2

Number of Full-Time Vocational Special Needs Personnel Providing Diagnostic and Prescriptive Services to Handicapped Students in Minnesota AVTI's--1978-79

	Licensure Category				
AVTI	Supvr.[a]	Spt.Svc.Mgr.[b]	Inst-Eval[c]	Other[d]	Total
Albert Lea	1	-	-	-	1
Alexandria	1	-	-	-	1
Anoka	1	-	6	-	7
Austin	1	-	2	1	4
Bemidji[e]	1	-	-	-	1
Brainerd	1	-	2	-	3
Canby	1	-	1	-	2
Dakota County	1	-	-	2	3
Detroit Lakes[e]	1	1	-	-	2
Duluth	1	1	-	3	5
East Grand Forks	1	-	-	2	3
Eveleth	1	-	-	1	2
Faribault	-	1	-	1	2
Granite Falls[e]	1	-	-	-	1
Hibbing[f]	-	-	-	2	2
Hutchinson	-	1	-	-	1
Jackson[e]	1	1	-	-	2
Mankato	1	1	-	-	2
Minneapolis	1	2	-	5	8
Moorhead	1	1	4	-	6
Pine City	-	1	-	-	1
Pipestone[e]	1	-	-	-	1
Red Wing	1	-	1	-	2
Rochester	1	1	-	-	2
St. Cloud	1	-	-	4	5
St. Paul	1	2	5	5	13

Table 3.2 (Continued)

	Licensure Category				
AVTI	Supvr.[a]	Spt.Svc.Mgr.[b]	Inst-Eval[c]	Other[d]	Total
Staples	1	-	-	-	1
Suburban Henn.[e] County, North	-	-	-	-	-
Suburban Henn. County, South	1	4	3	4	12
Thief River Falls	1	-	-	1	2
Wadena[e]	1	-	-	-	1
White Bear Lake (916)	1	2	3	4	10
Willmar	1	1	2	6	10
Winona	1	-	2	-	3
Total	29	20	31	41	121

Note.

[a] Special Needs Supervisor.

[b] Support Service Manager.

[c] Vocational Instructor-Evaluator.

[d] Other--Including Technical Tutor, Evaluator Aide, Remedial Related Instructor, Interpretor, Bi-Lingual Instructor, etc.

[e] No response was received from AVTI to cross-check numbers derived from listings and other sources.

[f] No formal Special Needs program implemented but these individuals still provide diagnostic and prescriptive services.

conduct of the conference, at locations in Mankato and Detroit Lakes, Minnesota. These latter two meetings were found to include approximately two-thirds of the total post-secondary vocational special needs personnel in Minnesota, a significant portion of the potential participants in this study. The investigator, upon consultation with his advisor and State Department of Education staff, as well as the coordinators of these meetings, determined that data gathering at all three meetings would be necessary to gain as much participation in the study as possible.

The final sample was composed of all those individuals who agreed to participate in the study, were employed in full-time vocational special needs positions in Minnesota AVTI's, were assigned to diagnostic and prescriptive duties, and who correctly completed and returned the instrumentation created for the study to the investigator. A total of 35 individuals agreed to participate in the study, of which 1 returned incomplete materials, 1 returned unusable materials, and 2 did not return any materials. Therefore, a total of 31 subjects were utilized in the analyses of data relevant to this study. Table 3.3 summarizes the participants in the study by AVTI of employment and vocational special needs licensure category which best described their job title and duties.

Based upon data summarized in Tables 3.2 and 3.3, participants in this study represented 15 of 34 Area Vocational-Technical Institutes in Minnesota (44% of the AVTIs). Participants in the study were distributed by licensure category as follows: special needs supervisors (19.4%); support service managers (19.4%); vocational instructor -

TABLE 3.3

STUDY PARTICIPANTS BY LICENSURE CATEGORY AND AVTI OF EMPLOYMENT

	Licensure Category				
AVTI	Supvr.[a]	Spt.Svc.Mgr.[b]	Inst-Eval[c]	Other[d]	Total
Albert Lea	-	-	-	-	-
Alexandria	-	-	-	-	-
Anoka	1	1	3	1	6
Austin[e]	-	-	2	1	3
Bemidji	-	-	-	-	-
Brainerd	-	-	-	-	-
Canby	-	-	-	-	-
Dakota County	-	-	-	-	-
Detroit Lakes	1	1	-	-	2
Duluth	-	-	-	-	-
East Grand Forks[e]	1	-	-	1	2
Eveleth	-	-	-	-	-
Faribault	-	-	-	-	-
Granite Falls	-	-	-	-	-
Hibbing	-	-	-	2	2
Hutchinson[e]	-	-	-	-	-
Jackson	-	-	-	-	-
Mankato	-	1	-	-	1
Minneapolis	-	-	-	1	1
Moorhead[e]	-	-	-	-	-
Pine City	-	-	1	-	1
Pipestone	-	-	-	-	-
Red Wing	-	-	-	-	-
Rochester	-	1	-	-	1
St. Cloud	1	-	-	-	1
St. Paul	-	1	2	1	4

TABLE 3.3 (Continued)

	Licensure Category				
AVTI	Supvr.[a]	Spt.Svc.Mgr.[b]	Inst-Eval[c]	Other[d]	Total
Staples	1	-	-	-	1
Suburban Henn. County,North	-	-	-	-	-
Suburban Henn. County,South	-	-	-	-	-
Thief River Falls	-	-	-	-	-
Wadena	-	-	-	-	-
White Bear Lake	-	-	3	-	3
Willmar	-	1	1	-	2
Winona	1	-	-	-	1
Total	6	6	12	7	31

Note.

[a] Special Needs Supervisor.

[b] Support Service Manager.

[c] Vocational Instructor-Evaluator.

[d] Other--Including Technical Tutor, Remedial Related Instructor, Evaluator Aide, Interpretor, Bi-Lingual Instructor, etc.

[e] Individuals either returned materials incomplete/unusable or did not return materials.

evaluators (38.7%); and others (22.6%). Those falling under the Other category included: technical tutors; evaluator aides; remedial related instructors; interpretors for the deaf, and bi-lingual instructors.

Variables Used

An extensive review of literature and impacting legislation was undertaken as part of this study to identify categories of diagnostic information (Table 2.1) and prescriptive services (Tables 2.2 and 2.3) that are utilized in the provision of educational and vocational services to the handicapped. Categories thus identified were then sorted into compatible groupings and a descriptive name was assigned to each, such that the characteristics of the original categories were maintained to the highest degree possible. All categories were evaluated and assigned to the new groupings of diagnostic and prescriptive services, as was felt to be appropriate. Collapsed categories of diagnostic information developed for this study are summarized in Table 3.4. Prescriptive service categories, program placement and modification types used in this study are summarized in Table 3.5. The investigator attempted to minimize the number of categories of diagnostic information and prescriptive services, so that they could be utilized effectively by practitioners, while still maintaining clarity and differentiating between each other. These categories were validated through the use of a panel of professionals knowledgable in diagnostic-prescriptive processes. The specific validation procedures used are discussed more fully at a latter point in this chapter.

TABLE 3.4

COLLAPSED CATEGORIES OF DIAGNOSTIC INFORMATION

Categories of Diagnostic Information	Documentation/Report Type(s)
Medical	Cardiovascular
	Gastro-Intestinal
	General Medical
	Neurological
	Orthopedic
	Psychiatric
	Respiratory
	Speech and Auditory
	Urological
	Visual
Psychological	Intelligence Testing
	Interest Inventories
	Aptitude Testing
	Personality Profile
	Perceptual-Motor Testing
Educational	Course Grade Reports
	Performance Reports
	Anecdotal Record/Teacher Observations
	Attendance Record
	Achievement Testing
Social/Independent Living	Behavior Rating Scale
	Social Worker Report
	Economic Status Report
Work Experience	Work History
	On-the-job Training Report
Vocational Evaluation	Vocational/work Evaluation Report
Casenotes	Individual Interview Notes
	Staff Conference Notes
Other	(Determined by individual case characteristics and information needs)

TABLE 3.5

COLLAPSED CATEGORIES OF PROGRAM TYPE, PROGRAM MODIFICATIONS AND SUPPORTIVE SERVICES

Program Type	Regular Class Placement	
	Special Class Placement	
	Modified Program	
	Pre-Vocational Program	
Program Modification	Scheduling/Length of Program	
	Curriculum Modification	
	Equipment Modification	
	Facility Modification	
	Supportive Audio-Visual Aids	
Special Educational Supportive Services	Remedial Instruction	
		Mathematics
		Reading
		Technical Tutoring
		Bi-lingual Instruction
		Socialization Skills
	Vocational Guidance	
		Career Guidance
		Career Exploration
	Counseling-Testing	
		Personal-Family Counseling
		Testing-Assessment
		Referral to Another Agency
	Employability Skills Training	
		Job Seeking/Job Keeping Skills
		Placement Assistance
	Communication Skills	
		Writing Skills
		Language Instruction
		Speech/Lanuage Therapy
		Sign Language
	Transportation	
		Mobility Training
		Van/Adaptive Vehicle
		Public Conveyance
	Special Devices for Student	
	Reader/Interpretor Services	
		Interpretor for the Deaf
		Reader for the Blind
		Interpretor/Bilingual Aid
	Direct Educational Support Services	
		Tool Purchase
		Tuition Waiver/Financial Aids
		Payments for Job Training Sites
	Non-Direct Educational Support Services	
		Maintenance (food, clothing,shelter)
		Prosthetic Devices
		Medical-Dental Assistance
		Adaptive Home Equipment
		Aide/Companion
	Other Supportive Services	
		(Based upon individual characteristics of need)

Instrumentation Development

Instrumentation developed for this study consisted of: (1) an informed consent and release form; (2) a data collection questionnaire; and (3) two simulated student case studies.

The informed consent and release form (Appendix A) was developed to inform the participant of the purpose(s) of the study, methods that would be utilized for collecting and reporting the data, and procedures which would be utilized to safeguard the confidentiality of the information which they provided. This form was reviewed by the investigator's advisor and the Committee on the Use of Human Subjects in Research, at the University of Minnesota, for compliance with guidelines specified by the Department of Health, Education and Welfare.

The questionnaire was utilized by participants to record their responses to four primary informational areas of interest in this study. These four areas of information included: (1) a description of the process(es) of diagnosis and prescription used by vocational special needs personnel; (2) a description of the academic preparation and work experiences of vocational special needs practitioners which specifically related to the education and vocational preparation of handicapped individuals; (3) a description of the perceived characteristics of Minnesota Area Vocational-Technical Institutes (AVTI s) in which participants were employed; and (4) identification of other perceptions and concerns that participants had regarding in-service training needs in areas such as diagnostic-prescriptive processes and special needs program improvement. Within the questionnaire (Appendix D), four sections were utilized to collect specific information relative to each of the areas identified previously.

Section I of the questionnaire was aimed at investigating the patterns and types of diagnostic and prescriptive services which would be utilized by individual practitioners in the development of an initial individualized education program (IEP) for a specific post-secondary vocational student with handicaps. Two simulated student case studies (Appendix B and C) were utilized in conjunction with this section of the questionnaire. The content and validation of these case studies will be discussed later in this chapter, only their specific use will be dealt with here. Three activities were constructed for use with each of the two simulated case studies included in the study, as part of this section of the questionnaire. Written and verbal instructions were provided to each participant with regard to each of these activities. The specific activities included: (1) selection and review of diagnostic data pertaining to a student having certain handicapping conditions; (2) selection of appropriate program placement, modification(s) and special educational support service(s) relative to remediating the effects of the particular handicapping conditions; and (3) evaluation of each simulated student case study relative to the participants present student caseload (difficulty) and personal perceptions (potential for success, confidence in decisions made and agreement with professional colleagues). Participants in the study completed each of the two case studies according to the same specified procedure, although the order of completion of the cases was randomly assigned. Simulated student case materials were utilized with this section to provide a common core of information on each of the two students so that individual participants could be compared and contrasted in their use of diagnostic information, prescriptive services and ratings. The specific procedures used for each of these activities, with both case studies, included:

Diagnostic Data Usage --

a. Review of referral information included in each simulated student case study (referral slip from counselor, statement of the philosophy of the school, student application form for specified vocational training program and a summary of curriculum information on the vocational program);

b. Decide whether or not they (the participant) had enough information to diagnose the students need(s) and develop an appropriate individualized education program. If they had felt that they had enough information they would go to step 1.h., otherwise they would continue to the next step.

c. Utilize the Student Data Sheet (Appendix D, Section I, Part I), which listed 29 diagnostic information types that were available for the student, to determine which information was needed in order for the participant to determine the student's need(s).

d. Record the order in which the specific type of diagnostic information was selected for the student (the first document selected would be "1", the second "2", etc.) and list it in the Order of Selection column following the category.

e. Pull the selected document from the packet provided. Open it and review the information it contained.

f. After reviewing the contents of the report, set the report aside without reinserting it into the packet.

g. Repeat steps 1.b. through 1.g. until the participant felt that they had sufficient information to make decisions regarding an initial individualized education program (IEP) for the student, or until all of the available documents had been selected.

h. Should other types of information be needed, which were not listed, the participant would insert the names of these diagnostic information types under the "Other" category on the Student Data Sheet. They would also list the order in which they would have selected these types of information as they had done with previously utilized reports.

i. Upon deciding that they had enough information to develop an initial individualized education program (IEP) for the student, or having used all the information included in the packet, the participant would complete Parts II and III for each Case Study. These latter parts related to development of the initial individualized education program (IEP) (prescription) and the evaluation of the case study, respectively.

j. After completion of all sections (Parts I - III) for the first case study assigned, the participant would return all materials to the packet, then complete the second case study in a similar manner.

All data collected on the use of diagnostic data with simulated student case studies provided was in the form of rank ordering of the specific category of information used. No information beyond the student application form, statement of the philosophy of the school, referral slip from counselor, or the summary of the vocational program curriculum was required to be used by the participating vocational special needs practitioner. Participants were free to use any or all of the additional diagnostic information types specified in the Student Data Sheet or to list additional reports under the "Other" category. Specific diagnostic information types used with each of the simulated student case studies included the following:

1. Medical reports --
   a. Cardiovascular report.
   b. Gastro-intestinal report.
   c. General medical report (physical).
   d. Neurological report.
   e. Orthopedic report.
   f. Psychiatric report.
   g. Respiratory report.
   h. Speech and auditory report.
   i. Urological report.
   j. Visual report.
2. Psychological information --
   a. Intelligence test.
   b. Interest inventory.
   c. Aptitude test.
   d. Personality profile.
   e. Perceptual-motor test.

3. Educational information --
    a. Course grade report.
    b. Performance report.
    c. Anecdotal record/Teacher observations.
    d. Attendance record.
    e. Achievement test.
4. Social/independent living information --
    a. Behavior rating scale.
    b. Social worker report.
    c. Economic status report.
5. Work experience information --
    a. Work history.
    b. On-the-job training report.
6. Vocational evaluation information --
    a. Vocational evaluation report.
7. Casenotes --
    a. Individual interview.
    b. Staff conference notes.
8. Other -- (Specified by participant).

These diagnostic information reports were contained in packets with the general information specified (i.e. student application form, referral slip, philosophy of the school, vocational program curriculum summary) for each of the two simulated case studies utilized in the study. Each of the specific diagnostic information types used in these case studies correspond to those identified in Table 3.4.

The next activity included in Section I of the questionnaire, for both of the simulated case studies, was that of developing an initial individualized education program (IEP) based upon the information which was reviewed in the diagnostic activity which preceeded it. This program of service was initial in that it only specified those program placements, modifications and special educational support services which would be used at the outset in the vocational training of the student, assumption being made that certain adjustments to the service program or IEP would be justified at later points in their participation. Based upon the information which was reviewed, each participant was instructed to:

Initial Individualized Education Program (IEP) --

a. Recommend which type of vocational program placement, program modification(s) and type(s) of special educational support services should be utilized to meet the identified needs of the student portrayed in the case study.

b. Place a check after each program, modification and special educational support service recommended and listed in Part II of Section I, in the questionnaire (Appendix D).

c. Select one and only one program placement type for each case study, Use any or all of the program modification or special educational support service types.

d. List additional program modifications or special educational support service types required, but not listed, under the "Other" category.

Data collected in this activity was dichotomous in that either the type of program placement, modification or special educational support service was used (as indicated by a check mark) or it was not (no check mark). Specific categories of program placement, modification and special educational support service types used with each case study correspond to the categories listed in Table 3.5. These categories are summarized here for the reader:

1. Program placement type --
    a. Regular class placement.
    b. Special class placement.
    c. Modified program.
    d. Pre-vocational program.
2. Program modifications --
    a. Scheduling/length of program.
    b. Curriculum modification.
    c. Equipment modification.
    d. Facility modification.
    e. Supportive audio-visual aids.
3. Special educational support services --
    a. Remedial instruction.
        i. Mathematics.
        ii. Reading.
        iii. Technical tutoring.
        iv. Bi-lingual instruction.
        v. Socialization skills.
    b. Vocational guidance.
        i. Career guidance.
        ii. Career exploration.

c. Counseling-testing.
   i. Personal-family counseling.
   ii. Testing-assessment.
   iii. Referral to another agency.

d. Employability skills training.
   i. Job seeking/job keeping skills.
   ii. Placement assistance.

e. Communication skills.
   i. Writing skills.
   ii. Language instruction.
   iii. Speech/language therapy.
   iv. Sign language.

f. Transportation.
   i. Mobility training.
   ii. Van/adaptive vehicle.
   iii. Public conveyance.

g. Special devices for the student (specified by the participant).

h. Reader/interpretor services.
   i. Interpretor for the deaf.
   ii. Reader for the blind.
   iii. Interpretor/bi-lingual aid.

i. Direct educational support services.
   i. Tool purchase.
   ii. Tuition waiver/financial aids.
   iii. Payments for job training sites.

j. Non-direct educational support services.
   i. Maintenance.
   ii. Prosthetic devices.
   iii. Medical-dental assistance.
   iv. Adaptive home equipment.
   v. Aide/companion.
k. Other supportive services (specified by the participant).

The third and final activity relative to the simulated case studies included in Section I of the questionnaire, pertained to evaluation of the particular case. Four questions were asked of each participant regarding the particular case study which they had just completed. The first three questions were answered by placement of a check mark in a box representing the particular response of the participant to the question posed. A five-point Likert scale was utilized for each question, with boxes representing each point on the scale. The final question required that the participant enter a number relating to the percentage of professional colleagues in Minnesota AVTIs that would agree with their particular diagnostic and prescriptive process outcomes for the case study being evaluated. The specific questions and responses used with this activity included:

Case Evaluation --

a. What would be the probability of success for this student in the vocational program listed, assuming that the IEP you have just developed was implemented?

1 = No Chance 5 = Absolute Certainty

1	2	3	4	5
☐	☐	☐	☐	☐

b. Relative to the students you normally work with, how difficult would this case be?

1 = Much Less Difficult, 3 = Same, 5 = Much More Difficult

1	2	3	4	5
☐	☐	☐	☐	☐

c. How confident are you in your determination of student needs and IEP with this case?

1 = No Confidence, 3 = Uncertain, 5 = Absolute Confidence

1	2	3	4	5
☐	☐	☐	☐	☐

d. Out of all the other post-secondary special needs personnel in Minnesota, approximately what percentage would have reached the same decision that you did in the determination of the individualized education program (IEP) for this case? (Specify percentage - e.g. If 45 out of 100 agree with you, insert 45%).

___%

Section II of the questionnaire was aimed at collecting categorical data that could be utilized in describing the general characteristics of participants in the study. Questions asked in this section required that either the participant check particular categories that applied to them or insert descriptors which were most appropriate. The particular questions asked of participants and response choices used were:

a. Which licensure category best reflects your present job title? (special needs supervisor; support service manager; vocational instructor - evaluator; other)

b. What portion of your job duties are directly related to diagnosing student needs and determining the most appropriate services and program modifications to implement for meeting those needs? (0 - 10%; 11 - 20%; 21 - 30%. . . . 91 - 100%)

c. What type of education licenses do you presently hold? (listing of both standard and vocational licenses that are presently valid in the State of Minnesota -- vocational, special and standard)

d. How old are you? (under 25; 26 -34; 35 - 44; Over 45)

e. What is your sex? (male; female)

f. How many years have you taught? (1 - 4; 5 - 9; 10 - 14; over 14)

g. What degree's or certificate's do you presently hold and in which fields are they? (check level and list major field for all that apply -- vocational certificate; associate's degree; bachelor's degree; master's degree; specialist's degree; doctorate; other)

Within Section III of the questionnaire, specific questions relating to particular coursework or work experiences with certain handicapping conditions, diagnostic assessment methods, and prescriptive services were directed toward the participant. In addition, personal perceptions of in-service training needs within diagnostic and prescriptive service categories were identified. All responses to questions included in this section were dichotomous responses on the nominal level (check mark signifying response; no check mark signifying non-response). The following questions were asked of the participants, with corresponding response choices listed:

a. In which of the following handicapping conditions have you had formal academic preparation? (check all that apply)

b. With which types of handicapping conditions have you had practical work experiences? (check all that apply)

(The following response choices were used with each of the above questions)

i. Mental retardation.
ii. Specific learning disabilities.
iii. Emotional disturbances.
iv. Orthopedic impairments.
v. Speech impairments.
iv. Deafness/hearing impairments.
vii. Blindness/visual impairments.
viii. Chemical dependency.
ix. Other health impairments.
x. Multiple handicaps.
xi. Other (specify type).

c. In which of the following diagnostic-assessment types have you had formal academic preparation which would enable you to use the information provided in the development of an individualized education program (IEP) or your present daily duties in diagnosis and prescription? (check all that apply)

(Same as those listed in Table 3.4 and under Student Data Sheet in Section I of the questionnaire)

d. In which of the following prescriptive programs, modifications or services have you had formal academic preparation that would enable you to prescribe it appropriately to meet individual student needs? (check all that apply)

(Same as those listed in Table 3.5 and under Individualized Education Program in Section I of the questionnaire)

e. If additional in-service education was available in diagnostic-assessment and prescriptive methods, which areas would be beneficial to you? Instruction may include development of knowledge of procedures and administrative regulations to obtain required services (check all that you have need for training in)

(Same as those listed in Table 3.4 and 3.5 and under Section I of the question)

Section IV of the questionnaire was specifically aimed at collecting information on the participants perceptions of their employment setting and concerns for improvement of vocational special needs services. Response required for questions included in this section varied from simple checks for selected categories (dichotomous nominal responses) to insertion of numerical responses (number of students) to narrative open-ended responses. Specific questions asked and response choices used include:

a. What is the typical setting from which the majority of your students come? (metropolitan; suburban; rural)

b. What is the typical referral source for the handicapped students with which you work? (self/family; high school; program instructor; drug rehab. program; veterans administration; other AVTI; insurance company; social security; CETA; corrections; welfare; manpower services; services for the blind; developmental disabilities center; other (specify))

c. What are the primary disabilities of the handicapped students with which you work? (none; mental retardation; learning disability; emotional disturbance; chemical dependency; multiple handicaps; orthopedic impairment; speech impairment; deaf/hearing impairment; blind/visual impairment; other health impairment; other (specify))

d. How many students do you serve in your special needs role, for each of the following categories, on a regular and yearly basis? (specify estimated number of individual students served -- total students/handicapped students only)

e. How many students are enrolled in day programs at the post-secondary level within your Area Vocational-Technical Institute? (249 or fewer; 250 - 499; 500 - 749; 750 - 999; 1000 - 1499; 1500 - 1999; 2000 or more)

f. Which of the following types of diagnostic-assessment and prescriptive services do you use or are available for use in meeting the educational and vocational needs of handicapped students? (these may be available in the school or community)

(Same categories as listed in Table 3.4 and 3.5 and in Section I of the questionnaire)

g. Comments -- Please feel free to make any additional comments concerning this project, special needs services, licensure requirements, and/or in-service/continuing education, which you feel will be of importance in improving the status of post-secondary vocational education for the student with special needs. (open-ended narrative response)

Placement of items and activities within the questionnaire were completed according to the following considerations:

1. Placement of high priority items relating to the practices of diagnosis and prescription by individual practitioners at the beginning of the questionnaire (Section I), to overcome influences of fatigue on the accuracy of resulting responses.

2. Data collected would be in a format which could be easily and accurately key-punched for computerized statistical analyses.

3. Data would be organized so that it could be easily sorted into appropriate groupings for later discussion (i.e. Section I data would relate to potential diagnostic and prescriptive practices of participants; Section II would relate to general demographic descriptors of participants that could be utilized in later comparisons between groups; Section III would aid in discussing the present academic preparation and work experiences of participants; and Section IV would describe the present perceived availability of services, groups of special needs students being served and express further concerns that participants had for program development and improvement).

Case Study Development

Two simulated student case studies were developed to provide a common informational base upon which the individual diagnostic and prescriptive processes used by vocational special needs practitioners, under ideal conditions in which all service types were made available, could be evaluated.

The two simulated student case studies were structured so that participants were required to:

1. Review general information on the student, the vocational school's philosophy and policy regarding the handicapped, the vocational training program curriculum selected, and a referral slip from the vocational guidance counselor.
2. Select and order individual diagnostic information reports that they would utilize in determining the student's individual needs.
3. Develop an initial entry-level individualized education program (IEP) for the student based upon diagnostic information used by specifying: type of class placement, types of program modifications, and special educational support services necessary to insure the students participation and success in the training program; and
4. To evaluate each of the two simulated case studies in terms of: the probability of success of the student in the vocational training program selected; the difficulty of each case study in terms of its comparability with the students they typically work with; the confidence that the participant had in their

own determination of student needs and individualized education program; and an estimate of how they feel their use of diagnostic and prescriptive services would compare with that of their peers who function in post-secondary positions in Minnesota AVTIs.

The simulated student case studies were constructed so that students being portrayed would be characteristic of those handicapping conditions which practitioners appear to confront most frequently or have the most difficulty in dealing with, in the majority of programs presently functioning within the State of Minnesota. These categories of handicap were identified through a previous study by Schneck, Lerwick and Copa (1978), which utilized data collected on post-secondary vocational education programs in Minnesota AVTIs that related to the prevalence of handicapped persons receiving special needs services. Multiple handicaps were included in both simulated student case studies, based upon the frequency by which learning and disadvantaging conditions are evidenced by real students who are served under vocational special needs programming. Case study content, particularly that included within specific diagnostic reports, was derived from previous research in diagnosis and prescription (Coker, 1976; Wainright, 1974), in which the case study approach was utilized. Data taken from case materials used in these studies were originally obtained from actual case files of clients receiving services through the vocational rehabilitation system. Modifications to these materials and further expansion of diagnostic reports used for the case studies in this project, were taken from information in instructional texts (Brolin, 1976; Davis, 1976a;

Davis, 1976b; Phelps, 1977), information from additional student case files, and specific information on handicapping conditions (Dunn, L., 1973; Gottlieb, 1978).

Case studies developed for this study included the following categories of handicaps and compounding conditions:

	Case Study	
	A	B
Primary Handicap	Orthopedic Impairment (Amputation)	Hearing Impairment (Congenital Deafness)
Secondary Conditions	Specific Learning Disability (Reading)	Economic Deprivation (Income less than poverty level) Specific Learning Disability (Reading and math) Social Problems

These conditions were not identified for the participants directly, to avoid the impact of labeling on their decision-making. Rather, each participant had to deal with separate pieces of information to arrive at a perception of individual student need and appropriateness of alternative remediation techniques or services to assign.

Packets used with each simulated student case study (Appendices B and C) contained four pieces of general information and twenty-nine sealed pieces of diagnostic information, as previously listed in Table 3.4 and the Student Data Sheet listed in Section I of the questionnaire (Appendix D). Listing of the diagnostic information types available to participants on the Student Data Sheet specified the order in which the sealed pieces of information were placed in the packet for each case study. Validation of the content of each student case study was undertaken using a panel of multi-disciplinary experts. The specific validation procedures used will be discussed in the next segment of this chapter.

Validation of Instrumentation and Categories

Rough and final drafts of the questionnaire, informed consent and release form, and simulated student case study materials were carefully reviewed by a panel of experts, possessing extensive knowledge in: eudcational and rehabilitative services for the handicapped; school operations; diagnostic-prescriptive techniques; laws and regulations impacting upon service provision; academic preparation of human services practitioners; research design; and needs within the field of vocational special needs education. Persons were selected based upon their possession of a majority of these specified criteria. In nearly every case, individuals on the expert panel had multi-disciplinary academic preparation and work experiences that provided a broad perspective on which they could provide input. The following individuals were utilized to evaluate the instrumentation and validate categories of diagnostic and prescriptive services used within it:

- Dr. Gordon Krantz, Department of Psychoeducational Studies, Special Education Program, University of Minnesota
- Dr. David Pucel, Department of Vocational and Technical Education, University of Minnesota
- Dr. Geri Hansen, Bureau of Vocational Rehabilitation, Program Evaluation Section, State of Michigan
- Dr. Karl Botterbusch, Materials Development Center, Stout Vocational Rehabilitation Institute, University of Wisconsin - Stout
- Mr. William Stewart, Department of Vocational Rehabilitation, Stout Vocational Rehabilitation Institute, University of Wisconsin - Stout
- Ms. Colleen Esser, Department of Vocational Rehabilitation and Center for Vocational, Technical and Adult Education, University of Wisconsin - Stout
- Dr. Fred Menz, Research and Training Center, Stout Vocational Rehabilitation Institute, University of Wisconsin - Stout
- Mr. Hal Birkland, Division of Vocational-Technical Education, Special Needs Section, Minnesota Department of Education
- Mr. David Johnson, Coordinator, Project EXPLORE, St. Paul Public Schools, St. Paul, Minnesota
- Mr. Dennis Jensen, Secondary Work Experience Program, St. Paul Public Schools, St. Paul, Minnesota
- Mr. John Wesolek, Director, Vocational Development Center, Stout Vocational Rehabilitation Institute, University Wisconsin - Stout

Comments from each of these individuals were considered and implemented in the construction of the finalized instruments. None of the panel members expressed any difficulty with the categories of diagnostic and prescriptive services developed for the study (Tables 3.4 and 3.5), but felt that they were differentiated, representative and appropriate to present programmatic operations and concepts of diagnostic-prescriptive education. Panel members completed the entire questionnaire, with its accompanying simulated student case studies, in the same manner as the participants in the study would during the data collection phase. In conjunction with the evaluation of the questionnaire and informed consent and release form, the members of the panel were asked to use the case study materials in completing the diagnostic and prescriptive activities that were part of the instruments. Terminology, technical information and method of presentation of diagnostic information were critically reviewed by each panel member and corrections were made to the instruments prior to final reproduction and use in data collection. Written and verbal communications between panel members and the investigator took place, to insure that all of their concerns and suggestions would be considered in the final draft of the instrumentation. Minimal difficulty or need for corrections were found by the panel in their review.

During their processing of the simulated student case studies, panel members were encouraged to use the "Other" category under both the diagnostic and prescriptive service listings. This information was utilized as a preliminary measure of the content validity of these categories. Further assessment of the validity of these diagnostic and prescriptive service schemes would be accomplished during the data collection phase. Final validity of the diagnostic-prescriptive service categorization schemes developed for this study was determined through the frequency of use of the "Other" categories by study participants. If the "Other" categories within the diagnostic and prescriptive service listings were used by less than 5 percent of the participants and there were limited comments made regarding difficulty in the use of the categorization schemes, satisfactory content validity for these listings would be assumed. During the review by panel members, limited comments regarding the difficulty of use of categorization schemes were expressed. Panel members did not use the "Other" categories of either listing at all during the processing of the simulated student case studies. During actual data collection activities, participants did not find any technical problems in the content of diagnostic reports used in the case studies. Participants expressed limited comments regarding the technical information presented or the use of diagnostic and prescriptive categories included in the instrumentation.

The data collected through this study pertaining to these diagnostic and prescriptive service listings were also utilized to aid in the development of an operational listing of services for the Special Needs and Program Improvement and Information Sections of the Division of Vocational-Technical Education, in further standardization of special needs program procedures. The processes heretofore mentioned have all contributed to the determination of the overall quality of the instruments used within the study.

Content validity addresses the degree to which the content of a test or instrument sample the kinds of things about which conclusions are to be drawn. This study established the content validity of the instruments through the use of an extensive review of literature and related research, and reviw by a panel of experts in human service fields. It was also established through the procedure described earlier to determine if practitioners felt the listings of services were insufficient and had to use the "Other" categories to a large extent. The minimal use of these categories can be viewed as one more indication of content validity. Based on these methods, it was assumed that an adequate level of content validity was obtained for the instrumentation used within this study.

Due to the nature of this study and the format of the instrumentation that was used, determination of measures of stability of individual response or internal consistency of responses were not feasible. The reader is therefore warned against assuming that acceptable reliability has been established for the instrumentation used in this study.

Data Collection

The investigator solicited participation in this study during three meetings of post-secondary vocational special needs personnel from Minnesota Area Vocational-Technical Institutes (AVTIs). These meetings were held in Mankato, Brooklyn Park and Detroit Lakes, Minnesota, during a two-week period from March 22 to April 6, 1979.

At each meeting, the investigator gave a five-minute presentation on the purpose(s) of the project to the total group in attendance. Individuals meeting the qualifications for study participation (e.g. post-secondary level, working with handicapped students, performing diagnostic-prescriptive duties, full-time employment, etc.) were asked to be present at a twenty-minute meeting at which materials would be handed out, procedures discussed and potential outcomes of the study presented. During the twenty-minute briefing session, individuals willing to participate in the study were assigned materials and administrative details were explained.

During the distribution of instruments the participants were randomly assigned to alternate orders of completing the simulated student case study activities included in Section I (completion of Case A before Case B/completion of Case B before Case A).

The investigator then presented information regarding general procedures for completing the activities and questions included in the instruments. Steps required to accurately complete each section of the instruments were explained to the participants and questions answered prior to continuing. Resource materials that could be utilized by participants during the processing of the case studies were identified (e.g. Buro's Mental Measurements Yearbooks, Physicians Desk Reference, specific test administration manuals, etc.). Step-by-step procedures for completing the case study processes were provided in detail, according to those listed in the actual instrumentation (Appendix D). Purposes for the study, potential outcomes and specific products were presented and discussed.

As reward for participating, participants were told that they would receive a stipend of $20.00 plus mailing costs for completion of the intruments and to cover their expenses, time and effort. Further, copies of the project summary would be forwarded to each participant upon completion of the study. Self-return mailers were provided to the participants for mailing of the materials used to the investigator. As completed materials were received, authorizations for payment of the stipends were made. A total of 92% of the original participants in the study (33 of 35) returned their materials within two-weeks after the respective meeting in which they took part. Of the original 35 participants, 31 (89%) returned usable materials for inclusion in the data analyses. Subjects were insured of the confidentiality of their responses both before and after data were collected. Listings of participant names were kept separate from data that were collected through the study. Each subject participating in the study signed an Informed Consent and Release Form (Appendix E) which signified their willingness to allow group data to be presented in the study, as long as confidentiality assurances were maintained.

Inclement weather conditions and time limitations precluded completion of data collection activities at the original meeting sites. Therefore, participants were allowed to take the questionnaire and simulated case study materials home, forwarding the completed materials to the investigator by a specified dealine date, approximately one-week after the meeting date. Conditions under which the participant was to complete the instrumentation were stated to further control for external influences on the data collected. Each participant was told to set-aside three hours in which to complete the study and to eliminate any outside work or home distractions.

Data Preparation

After participants completed the supplied materials, the data were keypunched onto 80-column IBM computer cards. All data gathered from each subject, excluding verbal comments, were placed on sequenced cards with randomly assigned identification numbers to aid in collating and sequencing. Cross-checking of data entered on cards with original entries on the questionnaire was accomplished prior to processing and analysis. The use of computer cards for data entry allowed for summary tables to be developed and analyses to be performed through the batch processing capabilities of the University of Minnesota Computer Center. This was an extremely economical method of data entry and storage, given the amount of data collected.

Statistical Analysis of Data

Analyses of these data were accomplished through computer programs developed by the investigator utilizing the Statistical Package for the Social Sciences (SPSS) (Nie, et al, 1975) and hand computations utilizing statistical formulas provided in Nonparametric Statistics for the Behavioral Sciences (Siegel, 1956). The programs were run at the University Computer Center, University of Minnesota, at Lauderdale, Minnesota. Batch processing of data (card entry) was utilized within the SPSS programs, a system of computer programs that can be used in the analysis of social science data. It contains packaged programs that can be utilized to generate both descriptive and inferential statistical measures, including the chi-square (X^2), correlated t-test, signed ranks test and alternate forms of summary tables. Specific programs utilized in this study were: CROSSTABS; T-TEST; NPAR (nonparametric); and FREQUENCIES.

CHAPTER IV

ANALYSIS OF DATA

The data resulting from this study fall within three distinct categories which attempt to satisfactorily answer those research questions originally established for the investigation. These categories include:

1. A description of the characteristics and perceptions of vocational special needs practitioners who participated in the study;
2. An investigation of the variability in use of diagnostic information by practitioners in identifying the needs of vocational students with handicaps; and
3. An assessment of the variability in individualized education programs prescribed by these practitioners, based upon the diagnostic information provided, to meet the identified needs of vocational students with handicaps.

Since an extensive amount of information was gathered from the individuals who participated in this study, an organization plan was developed to alleviate misunderstanding or confusion that may occur with the reader during the discussion of results. This organization plan was utilized to describe the sequence by which the data were analyzed and utilized to answer the questions posed for the study.

Figure 4.1 presents extensive information pertaining to the use of specific information gathered from individuals participating in the study that was recorded in the various sections of the questionnaire. The left hand column lists the major and minor concerns of the study which were originally stated as research questions in Chapter I. The specific research question(s) addressed are identified in this column as well as within each column that follows to the right that pertain to the analysis approach used. Further, the source of data utilized for each analysis and to answer the research question posed is identified in terms of the section(s) of the questionnaire in which the data were recorded by the individual respondent. Sub-categories of analysis are listed under the major headings in the left-hand column, for example, as a segment of the investigation of variability in diagnostic information used the amount of diagnostic information used by respondents and the frequency of use of diagnostic information types was addressed.

Within the second and third columns of Figure 4.1, analysis and discussion was undertaken that related to the responses of participants with each of the two simulated case studies, independently or combined. Specifically, responses to each of the diagnostic, prescriptive and case evaluation activities for each case were completed (within case studies), as were the responses of each participant on both case studies (between case studies) compared for consistency. The fourth column of the figure is then utilized to identify the demographic variables which were used for comparisons between groups in the diagnostic and prescriptive activities for each case study. This column was also used to identify the descriptive characteristics that were identified to answer each of the remaining research questions (e.g. participant characteristics; AVTI characteristics; etc.).

Within each cell of the analysis plan, the particular procedure used with the data pertaining to the segment of analysis or research question posed was listed within parentheses. In addition, the particular research question to which the analysis referred was listed by number within parentheses.

Although this analysis plan follows a particular flow, that is a discussion of activities pertaining to the simulated student case studies comes prior to the description of the sample and their perceptions of employment setting, the discussion that follows in this chapter is dealt with differently. The organization of this chapter is such that an extensive portrayal of the academic preparation, work experiences and perceptions of the participating sample of practitioners is presented prior to an investigation of the variability in diagnosis and prescription with the simulated case studies. After a thorough presentation of the processes of diagnostic information usage has been completed, variations in the individualized education programs (IEP's) developed are extensively investigated. Next, participant evaluations of each of the simulated student case studies is undertaken. Finally, a summary of the major concerns of the participants with present program operations and future needs within vocational special needs education is stated.

FIGURE 4.1

PLAN UTILIZED TO ANALYZE RESPONDENT DATA DERIVED THROUGH THE STUDY

CONCERNS AND SOURCE OF INFORMATION [a]	SAMPLE CHARACTERISTICS		RESPONDENT CHARACTERISTICS [b]
	WITHIN CASE STUDIES	BETWEEN CASE STUDIES	
Variability in Diagnostic Information Usage (Questions: 1.1 - 1.5) (Source: Section I-Part I.A & I.B)			Impact of Respondent Characteristics (Question: 3.0)(Source: Section II)
Amount of diagnostic information used	Contrast of respondents by number of pieces of diagnostic information used (One-sample chi-square)(1.1)	Consistency in number of pieces of diagnostic information used by a respondent across cases (Correlated-t) (1.2)	Licensure-job title Portion of job duties devoted to diagnosis and prescription Highest level of education attained Field of highest academic preparation Years of teaching experience (Extension of the Median Test)(3.0)
Frequency of use of diagnostic information types	Contrast of diagnostic information types by number of times selected (One-sample chi-square)(1.3)	Consistency in number of times a diagnostic information type was selected by respondents across cases (Correlated-t)(1.4)	
Pattern of diagnostic information usage			
By respondents	Identification of order of selection patterns of diagnostic information types by individual respondents (Summary table)(1.5)	Identification of order of selection patterns of diagnostic information types by individual respondents (Summary table)(1.5)	
By diagnostic information type	Cummulative proportionate use of diagnostic information types by order in which selected by respondents (Summary table of proportion of respondents selecting type by order of selection) Ranking by frequency of use by respondents (Summary table)	Cummulative proportionate use of diagnostic information type by order in which selected by respondents (Summary table of proportion of respondents selecting type by order of selection) Ranking by frequency of use by respondents (Summary table of frequency of use for combined cases)	

FIGURE 4.1 (Continued)

PLAN UTILIZED TO ANALYZE RESPONDENT DATA DERIVED THROUGH THE STUDY

CONCERNS AND SOURCE OF INFORMATION [a]	SAMPLE CHARACTERISTICS		RESPONDENT CHARACTERISTICS [b]
	WITHIN CASE STUDIES	BETWEEN CASE STUDIES	
Variability in Educational Prescription (Question: 2.1 - 2.3) (Source: Section I, Part II.A & II.B)		Consistency in usage of program placements by a respondent across cases (Chi-square)(2.1)	
Type of program placement used	Contrast of program placements used by respondents (One-sample chi-square)(2.1)	Consistency in usage of program placements across cases (Correlated-t)(2.1)	
	Patterns of program placement usage based on frequency of selection (Summary table)	Pattern of program placement usage based on frequency of selection for combined cases (Summary table)	
Program modifications used			
Number used	Contrast of number of program modifications selected by respondents (One-sample chi-square) (2.2)	Consistency in number of program modifications used by a respondent across cases (Correlated-t) (2.2)	
Type used	Contrast of frequency of selection of program modifications across respondents (One-sample chi-square)(2.2)	Consistency in number of times program modifications were selected across cases (Correlated-t) (2.2)	
	Patterns of program modification usage based on frequency of selection (Summary table)	Pattern of program modification usage based on frequency of selection for combined cases (Summary table)	

FIGURE 4.1 (Continued)

PLAN UTILIZED TO ANALYZE RESPONDENT DATA DERIVED THROUGH THE STUDY

CONCERNS AND SOURCE OF INFORMATION [a]	SAMPLE CHARACTERISTICS		RESPONDENT CHARACTERISTICS [b]
	WITHIN CASE STUDIES	BETWEEN CASE STUDIES	
Special educational support services			
Number used	Contrast of number of special educational support services selected by respondents (One-sample chi-square) (2.3)	Consistency in number of special educational support services selected by respondents across cases (Correlated-t) (2.3)	
Type used	Contrast of frequency of selection of special educational support services across respondents (One-sample chi-square) (2.3)	Consistency in number of times special educational support services were selected across cases (Correlated-t) (2.3)	
	Patterns of special educational support service usage based on frequency of selection (Summary table)	Pattern of special educational support service usage based on frequency of selection for combined cases (Summary table)	
Case Study Evaluations (Question: 4.0) (Source: Section I, Part III.A & III.B)			
Probability of success	Summary tables of frequency of selection of specified response choices (Likert scale)		
Difficulty of case			
Confidence in decisions			
Agreement with peers	Summary table of frequency of use of intervals of response (percentages)		

FIGURE 4.1 (Continued)

PLAN UTILIZED TO ANALYZE RESPONDENT DATA DERIVED THROUGH THE STUDY

CONCERNS AND SOURCES OF INFORMATION [a]	SAMPLE CHARACTERISTICS		RESPONDENT CHARACTERISTICS [b]
	WITHIN CASE STUDIES	BETWEEN CASE STUDIES	
Characteristics of Vocational Special Needs Personnel			
(Question: 5.0) (Source: Section II and III)			Summary tables of frequency of selection of response choices:
			Licensure-job title
			Portion of job duties spent on diagnosis and prescription
			Age
			Sex
			Years of teaching experience
			Degree's or certificates held and field in which prepared
			Handicapping conditions in which they have formal academic preparation and practional work experiences
			Diagnostic-assessment methods in which they have formal academic preparation
			Prescriptive services in which they have formal academic preparation
			Perceived needs for training in diagnostic and prescriptive services

FIGURE 4.1 (Continued)

PLAN UTILIZED TO ANALYZE RESPONDENT DATA DERIVED THROUGH THE STUDY

CONCERNS AND SOURCES OF INFORMATION [a]	SAMPLE CHARACTERISTICS		RESPONDENT CHARACTERISTICS [b]
	WITHIN CASE STUDIES	BETWEEN CASE STUDIES	
Perceived Characteristics of Employing AVTI (Question: 6.0) (Source: Section IV,a-f)			Summary tables of: Geographic source for students Typical referral sources for handicapped students Primary disabilities of handicapped students worked with Number of special needs and handicapped students worked with on a regular and yearly basis Number of students enrolled in day programs Perceived availability of diagnostic and prescriptive services in AVTI and surrounding community
Individual Concerns and Comments (Question: 7.0) (Source: Section IV, g)			Listing of narrative comments made by respondents

Note.

[a] Concerns refer to original research questions posed in Chapter I (Question: ___) and sources of information refer to the specific section of the questionnaire in which responses were recorded (Section: ___).

[b] Respondent characteristics refer to the specific information that was collected to describe the sample taking part in the study. Within the area of investigation relating to variability in diagnosis, several comparisons were made between groups based on identifiers specified by the individual respondents. Comparisons between these groups was accomplished using the Extension of the Median Test.

The data collected in this study were aimed at providing both descriptive information about the participants and their present employment settings and to draw inferences about the performance of the larger body of practitioners in diagnostic and prescriptive activities with handicapped students. The major portion of these data were nominal data with little information being available regarding the distribution of the sample on the variables of concern. Since these conditions were present and because there was a limited number of participants in the study, non-parametric statistics were utilized fairly extensively throughout the inferential portions of the study.

Since only one-sample was included in the data collection activities, the X^2 (chi-square) one-sample test was utilized in determining the variability between subjects in their selection of various pieces of diagnostic data and prescriptive services. This test was felt to be appropriate, given the nature of the subjects, level of measurement and questions being presented for the study. Some problems were recognized in selecting this statistic. These limitations were: (1) the number of significance tests completed on the same limited amount of data; (2) the use of the mean number of pieces of diagnostic information or the mean number of prescriptive services selected by the total group of participants as an expected value for all subjects; (3) the inclusion of categories (subjects or diagnostic-prescriptive services) with observed frequencies of 0 or less than 5; and (6) completion of additional comparisons using the same data through use of differing statistical techniques. These limitations could have affected the significance level obtained for individual analyses, since degrees of freedom are restricted due to these factors and the potential for observing significant differences increases with the number of multiple comparisons taking place with the same limited amount of data. Therefore, the reader should be cautioned as to their interpretation and generalization of the results of these analyses.

Other analyses undertaken for this study must also be viewed by the reader within the confines of these limitations. The one-sample X^2 test of significance was used in a similar manner to assess the variability between diagnostic and prescriptive service categories by participants for each case study. The rationale for using this statistic was the same as that for its use in assessing the variability between subjects.

The extension of the median test was utilized to compare groups of subjects on the amount of diagnostic information which was used for simulated case studies, due to the limited number of participants falling within each category (N was frequently 6 or less for each category used for comparison). In these cases, the median was felt to be more indicative of group performance than the mean which was utilized with a larger group (N=31) in the previously discussed chi-square analyses.

As a measure of consistency of individual subjects between case studies, the correlated-t test was used. The same participants and types of diagnostic information were present in both case studies. Since the amount of diagnostic information used was of concern, these data appeared as interval data justifying the use of a parametric statistic.

The form of the data were the number of pieces of information used (count data). A test on the difference between means was then performed using the correlated-t test. Further, calculation of the correlation between respones for participants for both case studies was completed.

The remaining data collected for the study, primarily that relating to description of participant and employment setting characteristics, was presented in terms of frequencies, proportions, means and standard deviations as appropriate.

Characteristics of Vocational Special Needs Personnel

Each participant was asked to identify the licensure-job title which corresponded most closely with the job title or role he/she was in at the time of the study. Categories were taken from the Minnesota State Plan for Vocational-Technical Education (1977) and included: Special Needs Supervisor; Support Services Manager; Vocational Instructor-Evaluator; and Other. The Other category was used to include those individuals who had other licensures (e.g. Technical Tutor or Remedial Related Instructor) or roles which allowed them to perform diagnostic-prescriptive duties but were not included in the primary service provision categories identified in the State plan. The distribution of both estimated potential participants (Table 3.2) and those actually participating in the study, across each of these licensure-job title categories is summarized in Table 4.1. A total of 31 individuals participated in this study, with a minimum of 6 individuals falling within each of the categories of licensure-job title cited.

Each respondent was also asked what percentage of their job duties was involved with diagnosis and prescription, in terms of the time actually expended. Table 4.2 summarizes their responses, which ranged from 0% to 100% of their time spent on the job. Approximately one-third of the participants were involved with diagnosis and prescription for each of the following ranges of time expenditure: 0% to 30%; 31% to 60%; and 61% to 100%.

Participants ages ranged from less than 25 years to over 45 years (Table 4.3) with approximately half of the group falling within the range of 25 to 34 years (45.2%). The second most predominant group fell

TABLE 4.1

RESPONDENT DISTRIBUTION BY LICENSURE - JOB TITLE

Licensure - Job Title	Population[a]		Sample	
	Number	Percent	Number	Percent
Special Needs Supervisor	29	24.0	6	19.4
Support Service Manager	20	16.5	6	19.4
Vocational Instructor-Evaluator	31	25.6	13	41.9
Other[b]	41	33.9	6	19.4
TOTAL	121	100.0	31	100.1[c]

Note.

[a] Population as identified in Table 3.3.

[b] Includes Evaluator Aide, Vocational Counselor, Remedial Related Instructor, Technical Tutor, etc.

[c] Percent exceeds 100.0 due to rounding.

TABLE 4.2

PERCENTAGE OF RESPONDENTS JOB DUTIES INVOLVED WITH DIAGNOSIS AND PRESCRIPTION

Percentage of Job Duties Involved With Diagnosis and Prescription	Number of Respondents	Percentage of Sample
0 - 10	2	6.4
11 - 20	5	16.1
21 - 30	3	9.7
31 - 40	3	9.7
41 - 50	5	16.1
51 - 60	2	6.4
61 - 70	3	9.7
71 - 80	1	3.2
81 - 90	4	12.9
91 - 100	3	9.7
TOTAL	31	99.9[a]

Note.

[a] Percentage less than 100.0 due to rounding.

TABLE 4.3

RESPONDENT DISTRIBUTION BY AGE RANGE

Age Range (Years)	Number of Respondents	Percentage of Sample
Under 25	1	3.2
25 - 34	14	45.2
35 - 44	10	32.3
45 and Over	6	19.4
TOTAL	31	100.1[a]

Note.

[a] Percentage exceeds 100.0 due to rounding.

TABLE 4.4

RESPONDENT DISTRIBUTION BY SEX

Sex	Number of Respondents	Percentage of Sample
Male	22	71.0
Female	9	29.0
TOTAL	31	100.0

within the age range from 35 to 44 years (32.3%). Only 6 individuals (19.4%) were 45 or over, while 1 (3.2%) was under 25 years of age.

Study participants consisted of 22 males (71.0%) and 9 females (29.0%) (Table 4.4).

When asked to indicate the number of years of teaching experience possessed, participants were distributed as shown in Table 4.5. The majority (58.1%) of participants had less than 10 years of teaching experience. However, only 8 (25.8%) of the participants had less than 5 years of teaching experience.

Participants appeared to have fairly extensive academic preparation (Table 4.6). Only one participant, who was functioning as an Evaluator Aide, had no degree whatsoever. The majority of the group (71.0%) possessed a master's degree, one of which was completing work on a Specialist in Education degree. Of the 8 remaining, all possessed a baccalaureate degree, one of which was completing work on a master's degree.

Participants possessing academic degree's were then asked to indicate in which field(s) they had received preparation for the highest degree held. The following fields represent those in which the participants had received their highest level of formal academic preparation: vocational rehabilitation (30.0%); special education (23.3%); other education (16.6%); vocational education, industrial arts and home economics education (13.4%); counseling (13.3%); and technical fields (3.3%)(Table 4.7).

Participants were asked what formal academic preparation they had in specific handicapping conditions (Appendix F, Table 1). They

TABLE 4.5

RESPONDENT DISTRIBUTION BY YEARS OF TEACHING

Years of Teaching	Number of Respondents	Percentage of Sample
1 - 4	8	25.8
5 - 9	10	32.3
10 - 14	7	22.6
Over 14	6	19.4
TOTAL	31	100.1[a]

Note.

[a] Percentage exceeds 100.0 due to rounding.

TABLE 4.6

RESPONDENT DISTRIBUTION BY HIGHEST DEGREE HELD

Degree Held	Number of Respondents	Percentage of Sample
No Degree	1	3.2
Bachelor of Arts/ Bachelor of Science	8[a]	25.8
Master of Arts/ Master of Science	22[b]	71.0
TOTAL	31	100.0

Note.

[a] One respondent has completed coursework for the Master of Science.

[b] One respondent currently working toward Specialist in Education.

TABLE 4.7

RESPONDENT DISTRIBUTION BY HIGHEST DEGREE HELD AND FIELD OF PREPARATION (N=30)

Field of Preparation	Number Holding BA/BS	Percentage[c] of Sample	Number Holding MA/MS	Percentage[c] of Sample
Vocational Education, Industrial Arts & Home Economics Education	2	6.7	2	6.7
Special Education	0	0.0	7	23.3
Other Education[a]	4	13.3	1	3.3
Vocational Rehabilitation	1	3.3	8	26.7
Counseling	0	0.0	4	13.3
Technical[b]	1	3.3	0	0.0
TOTAL[c]	8	26.6	22	73.3

Note.

[a] Includes Elementary Education, Reading, Social Studies and English.

[b] Includes Math and Chemistry.

[c] Percentage less than 100.0 total due to rounding. N=30 since one respondent had no degree.

indicated that they had received varying amounts of specific training in handicapping conditions. Those handicaps in which they had most frequently received training (more than 33% indicating having received training) include: mental retardation (80.6%); chemical dependency (71.0%); emotional disturbance (67.7%); specific learning disabilities (61.3%); and deafness/hearing impairments (35.5%). Those conditions in which they had received the least amounts of training (less than 33% indicating having received training) include: orthopedic impairment and other health impairments (tie at 32.3%); multiple handicaps (25.8%); speech impairments and blindness/visual impairments (tie at 22.6%); and other conditions (e.g. spinal cord injury, cardiovascular disorders) (9.7%).

When asked as to what handicapping conditions participants had practical work experiences with (Appendix F, Table 2), the following were indicated as being most prevalent (more than 33% of participants indicating work experiences with condition): mental retardation, specific learning diabilities and emotional disturbance (tie at 87.1%); chemical dependency (80.6%); orthopedic impairments (61.3%); deafness/hearing impairment (58.1%); other health impairments (54.8%); speech impairment (48.4%); and blindness/visual impairment (42.0%). Those specific handicaps in which they had the least practical work experiences (less than 33%) included: multiple handicaps (29.0%); and other conditions (e.g. spinal cord injury, cardiovascular disorders)(9.7%).

Participants were next asked in what diagnostic assessment techniques they had received formal academic preparation, which would enable them to use the results of or administer the technique (Appendix F, Table 3). Those diagnostic assessment techniques in which most participants had received formal academic preparation included (more than 33%): achievement testing (93.5%); interest inventories (83.9%); aptitude tests, course grade reports, attendance records and individual interviews (tie at 80.6%); performance reports, vocational evaluation report and staff conference notes (tie at 77.4%); on-the-job training performance report (74.2%); intelligence tests, anecdotal records/teacher observations, and work history (tie at 71.0%); perceptual-motor tests (67.7%); personality profiles and behavior rating scales (64.5%); social worker report (48.4%); general medical report (45.2%); and economic status report (41.9%). Those diagnostic assessment techniques in which participants had the least formal academic preparation (less than 33%) included: psychiatric report (32.3%); speech and auditory report (22.6%); orthopedic report and visual report (tie at 19.4%); neurological report (16.1%); cardiovascular report and gastro-intestinal report (tie at 12.9%); and respiratory report and urological report (tie at 9.7%).

When asked in which prescriptive programs, modifications or special educational support services the participants had received formal academic preparation in the provision or use of (Appendix F, Table 4), the following were found to be most frequently indicated (more than 33%): program types -- regular class and special class placement (tie at 71.0%), modified program and pre-vocational programs (tie at 61.3%); program modifications -- curriculum modification (71.0%), supportive audio-visual materials (64.5%), scheduling/length of program (51.6%), equipment modification (48.4%), and facility modification (41.9%).

Most participants (more than 33%) had formal academic preparation in all indicated manners of program placement and modification. Those special educational support services in which participants indicated that they had the least formal academic preparation (less than 33%) included: language instruction and maintenance (tie at 29.0%); bi-lingual instruction, public conveyance and interpretor for the deaf (tie at 25.8%); mobility training (22.6%); van/adaptive vehicle and prosthetic devices (tie at 19.4%); special devices for students, reader for the blind and adaptive home equipment (tie at 16.1%); speech/language therapy and medical-dental assistance (tie at 12.9%); interpretor/bi-lingual aide (9.7%); aide/home companion (6.5%); and practical living skills (3.2%).

Participants were next asked if they had a perceived need for in-service training in diagnostic and prescriptive services, and if so, in which particular areas (Appendix F, Table 5) Within each and every diagnostic and prescriptive service type, less than half of the participants indicated any need for in-service training. Summaries of perceived in-service training needs are indicated in the Appendix and show only moderate needs in a few areas (e.g. intelligence testing, use of general medical reports, curriculum modifications, supportive audio-visual materials, bi-lingual instruction, etc.) and minimal needs in others (e.g. course grade reports, attendance reports, work history, tool purchase, maintenance, public conveyance, etc.).

Perceived Characteristics of Employing AVTI

Participants in the study were also asked several questions regarding the characteristics of their employment setting, as they perceived it (Appendix D, Section IV). These perceived characteristics were then summarized in tabular format in Appendix F (Tables 6 to 11).

Geographic source of student enrollee's in the Area Vocational-Technical Institutes employing participants were perceived as being approximately equal between metropolitan/suburban (50.6%) and rural (48.4%) settings (Table 6). Reference to Table 3.3, in which the AVTI of employment and the number of staff members participating in the study from each were indicated, indicates that approximately half of the AVTI's and participants were from metropolitan/suburban settings.

Referral sources for students with handicaps were perceived as being primarily from: high schools and the Division of Vocational Rehabilitation (tie at 54.8%); and the Comprehensive Employment and Training Act program (CETA) (45.2%). Those source least frequently (less than 33%) referring students included: corrections (29.0%); welfare (25.8%); program instructor and drug rehabilitation programs (22.6%); insurance companies and Manpower Services (tie at 19.4%); self/family (16.3%); Veterans Administration (16.1%); other AVTIs , Social Security and Services for the Blind (tie at 6.5%); and developmental disabilities centers, AVTI counselors and schools for the retarded (tie at 3.2%)(Appendix F, Table 7).

The characteristics of the vocational special needs student caseload handled by participants was also of interest (Appendix F, Table 8). Primary handicapping conditions with which participants work on a daily basis included (more than 33%): learning disabilities (77.4%); mental retardation (58.1%); emotional disturbance and chemical dependency (tie at 54.8%); and deafness/hearing impairments (38.7%). Those primary handicapping conditions with which participants work least frequently in a continuous manner (less than 33%) included: orthopedic impairment (32.2%); multiple handicaps (19.4%); other health impairments (e.g. asthma, cerebral palsy)(12.9%); other handicaps (e.g. spinal cord injury)(6.5%); speech impairments (3.2%); and blindness/visual impairments (0.0%).

The variation in size of the special needs caseload with which the participants worked was of interest also (Appendix F, Table 9). The total caseload with which these practitioners worked (including both handicapped and disadvantaged students) ranged from 8 to 150 individuals on an on-going basis and 20 to 425 over the course of a year (mean number of students worked with: regular = 35.59; yearly = 173.62). Of this total caseload, the number of handicapped students worked with ranged from 0 to 30 students on a regular, on-going basis and 0 to 180 students over the course of a year (mean number of handicapped students: regular = 11.96; yearly = 62.08).

The size of the AVTI in which participants worked, varied from 249 or fewer students to well over 2,000 or more students (Appendix F, Table 10). Approximately half of the participants worked in AVTI's having less than 1,000 students enrolled in post-secondary vocational education programs. These results tie heavily to the relative sources of student enrollments (Appendix F, Table 6) and the AVTI in which the participants were employed (Table 3.3). Area Vocational-Technical Institutes (AVTI's) with larger enrollments (e.g. over 1,000 students) tend to be in the metropolitan and suburban areas (e.g. White Bear Lake, Minneapolis, St. Paul, Anoka, Duluth, etc.).

Finally, participants were asked their perceptions of the availability of diagnostic and prescriptive services within their local communities and AVTI's of employment (Appendix F, Table 11). Diagnostic services most frequently cited as being available (more than 33%) included: achievement tests (90.3%); vocational evaluation reports (87.1%); intelligence and aptitude tests (tie at 83.9%); course grade reports (80.6%); interest inventories, performance reports and attendance records (tie at 77.4%); individual interviews (74.2%); general medical reports, work history and staff conference notes (tie at 67.6%); psychiatric report (64.5%); personality profile, perceptual-motor tests and anecdotal records/teacher observations (tie at 61.3%); speech and auditory report and visual report (tie at 58.1%); social worker report (54.8%); neurological report and orthopedic report (tie at 48.4%); on-the-job training performance report (41.9%); cardiovascular report and economic status report (tie at 38.7%); and gastrointestinal report and respiratory report (tie at 35.5%). Those diagnostic services which were indicated as being least available (less than 33%) included: urological report and behavior rating scales (tie at 29.0%); and other diagnostic services (e.g. individual staff/personnel notes)(3.2%).

Within prescriptive program types, all alternative placements to regular classroom settings (e.g. special classes, modified programs and pre-vocational programs) were perceived as being available in the majority of settings (more than 60%). Program modifications most frequently (more than 33%) indicated as being available included: supportive audio-visual materials (77.4%); curriculum modifications (67.6%); scheduling/length of program (64.5%); facility modifications (51.6%); and equipment modifications (38.7%). None of the program placement or modification types were found to be available in less than 33% of the AVTIs in which participants were employed. Special educational support services were perceived as being most available (more than 33%) for the following service types: remedial mathematics and reading (tie at 93.5%); job seeking/keeping (87.1%); technical tutoring (83.9%); career guidance, career exploration and testing-assessment (80.6%); referral to other agency (74.2%); job placement (71.0%); writing skills and language instruction (67.7%); interpretor for the deaf and tool purchase (tie at 61.3%); bi-lingual instruction, personal/family counseling and sign language (tie at 58.1%); tuition waiver/financial aids (48.4%); socialization skills (45.7%); maintenance (45.2%); and speech/language therapy and prosthetic devices (tie at 35.5%). Those special educational support services which participants perceived as being least available (less than 33%) included: public conveyance (29.0%); van/adaptive vehicle, reader for the blind and medical-dental assistance (tie at 25.8%); mobility training and aide/companion (tie at 22.6%); special devices for the student, interpretor/bi-lingual aide and adpative home equipment (tie at 19.4%); and others (0.0%).

Variability in Diagnostic Information Usage

Each of the participants in this study processed two simulated case studies on handicapped students desiring to enter into specific vocational education programs. General information was provided to the participants to provide a basic knowledge of the case including: standard application for vocational training; statement of the philosophy and policy of the school toward provision of services to the handicapped; a referral slip from the vocational counselor; and a summary of the curriculum for the specific course in which the student was interested. Each participant was then asked if he or she required additional diagnostic-assessment information upon which to formulate an initial individualized education program (IEP) for the student. If information was desired, the order in which it was selected and the type of information specifically requested was documented by the participant on the study questionnaire (Appendix D, Section I, Part I.A and I.B). The order in which diagnostic-assessment information was selected for each participant, by type, for Case Studies A and B are presented in tabular form in Appendix F (Table 12 and 13 respectively). The number of pieces of diagnostic-assessment information used by individual participants for the case study is listed as the marginal frequency at the bottom of each table. Marginal frequencies located in the far right column of each table indicate the number of times that each type of diagnostic-assessment information was requested by respondents in the study. Visual inspection of each table shows differences between individual participants in the type and order in which diagnostic-assessment information is utilized. Further, differences in the frequency of use of specific diagnostic information types is also readily apparent. However, the degree to which differences exist, particularly those differences which could take place by chance occurrence alone are not portrayed in this single manner of presentation. Additional analyses of these data were required to fully understand differences in utilization between and within participants, as well as in diagnostic information types.

Amount of Diagnostic Information Used

Initial analyses of these data looked at variability in the usage of diagnostic information by participants, both within individual cases and for combined cases. Order was not considered, due to limited subjects (N=31) and the potential for empty cells to exist in the analyses; as is readily apparent after scanning the respective tables (Appendix F, Tables 12 and 13). Rather, the number of pieces of diagnostic information used by participants was utilized to investigate the variability in information need across individuals within each case study. Once this was accomplished, the number of pieces of diagnostic information requested by each participant was compared for the combined case studies to aid in understanding the consistency of information need.

The one-sample chi-square test of significance (Siegel, 1956) was utilized to analyze differences in the amount of information used by participants within Case Studies A and B respectively. The number of pieces of diagnostic information used by individual participants within each case study ranged from 3 to 18 pieces in Case Study A and from 3 to 19 pieces in Case Study B. The mean number of pieces of diagnostic information used for each case study was utilized as the expected value that would be used in each analysis. The mean was felt to more accurately represent the distribution of information need that would be exhibited for each case and would not inappropriately reflect skewness resulting from a small sample such as this. Over or underestimate of information need could potentially be brought about if the median was used in the analyses. The mean value also fits into the one-sample chi-square analysis in that total frequencies for both expected and observed values must be equal. Application of the one-sample chi-square test to these data was undertaken to determine if differences existed between individual participants in the amount of diagnostic information which they required for determining the needs of a handicapped student. Since a fairly large number of statistical analyses were undertaken using the same, limited amount of data from this study, the reader should understand the potential effect that can take place on the determination of significant differences between groups due to multiple comparisons and dependence (non-orthogonality) between categories. Although these factors have effect upon the actual significance levels and degrees of freedom resulting in each analysis, the actual value of the statistical test (e.g. chi-square or correlated t) and the relative level of significance for each can be used to determine the strength of results in comparison to other analyses. However, the reader should not assume that the level of significance stated for each analysis fully reflects the presence or lack of differences between individuals or categories. These comments also apply to the tables and discussion which relate to the diagnostic and prescriptive processes addressed by this study (Refer to Tables 4.8 to 4.13; 4.16; 4.19; 4.22; 15 to 19; 23 to 34).

Anlaysis of the data from Case Study A (Table 4.8) indicated that no statistically significant differences existed between participants in the number of pieces of diagnostic information that they required (Chi-square = 37.65, significance = $.20 > p > .10$, degrees of freedom = 30), at the levels typically established for significance tests of this type (e.g. $p = .10$, .05 or .01).

In the analysis of data from Case Study B (Table 4.9), differences between individual participants in the amount of diagnostic information used was found to be significant beyond the .05 level (Chi-square = 45.69, significance = $.05 > p > .02$, degrees of freedom = 30). This

TABLE 4.8

CONTRAST OF RESPONDENTS IN THE NUMBER OF PIECES OF DIAGNOSTIC INFORMATION USED FOR CASE STUDY A

	Subject																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL
Expected[a] Number	← 9.9 →																															
Observed Number	10	10	8	3	8	5	9	6	14	13	12	6	13	7	8	13	12	6	8	7	9	9	15	11	9	15	9	16	11	7	18	307

Chi-Square = 37.65 Significance = $.20 > p > .10$* Degrees of Freedom = 30

Note.

[a] Expected number equals the mean number of pieces of diagnostic information used by the sample.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 4.9

CONTRAST OF RESPONDENTS IN THE NUMBER OF PIECES OF DIAGNOSTIC INFORMATION USED FOR CASE STUDY B

	Subject																															TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Expected[a] Number	← 9.68 →																															
Observed Number	7	10	7	4	7	3	6	6	15	10	13	9	18	10	9	8	14	6	4	8	10	7	14	12	10	13	8	19	12	10	11	300

Chi-Square = 45.69 Significance[b] = .05 > p > .02 * Degrees of Freedom = 30

Note.

[a] Expected number equals mean number of pieces of diagnostic information used by the sample.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

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[b] Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

indicates that differences existed between individual participants in the amount of information which they utilized to determine student needs, beyond those differences which could be attributed to chance alone.

Analysis of data for combined cases (Table 4.10) was undertaken, utilizing the correlated-t test, to determine if significant differences existed within individual participants in the amount of information they required for cases involving students with different handicaps. No statistically significant differences could be found from this analysis (Correlated-t = .19, significance = $p > .80$, degrees of freedom = 30). The correlation between the number of pieces of diagnostic information used by individual participants for each of the two cases was found to be relatively strong ($r_{12} = +.78$). This correlation was found to be significant well beyond the .01 level, indicating that this relatively strong relationship does not exist purely by chance. Results of this analysis indicate that when dealing with differing cases, individuals who are heavy users of diagnostic information in one situation will tend to use a large amount of information in another. Likewise, individuals who use little information with one case can be expected to use similar amounts with another.

In summary, these analyses indicate that when individual participants utilized diagnostic information to determine the needs of students with handicaps:

1. There were differences between individual participants in the amount of diagnostic information they required; and

TABLE 4.10

CONSISTENCY IN NUMBER OF PIECES OF DIAGNOSTIC INFORMATION USED BY A RESPONDENT ACROSS CASES

Subject	Number of Pieces Used		Difference (A - B)
	Case A	Case B	
1	10	7	3
2	10	10	0
3	8	7	1
4	3	4	-1
5	8	7	1
6	5	3	2
7	9	6	3
8	6	6	0
9	14	15	-1
10	13	10	3
11	12	13	-1
12	6	9	-3
13	13	18	-5
14	7	10	-3
15	8	9	-1
16	13	8	5
17	12	14	-2
18	6	6	0
19	8	4	4
20	7	8	-1
21	9	10	-1
22	9	7	2
23	15	14	1
24	11	12	-1
25	9	10	-1
26	15	13	2
27	9	8	1
28	16	19	-3
29	11	12	-1
30	7	10	-3
31	18	11	7
$\sum$	307	300	7
$\bar{X}$	9.90	9.68	0.23
s	3.52	3.55	2.62
$s_{\bar{x}}$	1.81	1.77	1.19

Correlated t = $\dfrac{\bar{x}_d}{\sqrt{\dfrac{\sum x_d^2}{N(N-1)}}} = .19$

Degrees of Freedom = 30

Significance = $p > .80$*

$r_{12} = +.78$

Source.

Guilford, J. P. & Fruchter, B. Fundamental Statistics in Psychology and Education. New York: McGraw-Hill, Inc., 1978.

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*Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

2. There was a strong relationship between the amount of information required by an individual participant for diagnosing the needs of students with differing handicaps (i.e. the participants tended to be consistent in the relative amounts of diagnostic information they used from case to case).

Frequency in Use of Diagnostic Information Types

Additional analyses of these data were undertaken to provide insight into programmatic aspects of the diagnostic process, useful in the development of standardized operational procedures. Specifically looked at were the variability in use of specific diagnostic information types across all study participants, both in individual and combined case studies. The number of times that each specific type of diagnostic information was selected by participants was used to investigate the information needs exhibited for each simulated case study.

The one-sample chi-square test of significance was utilized to determine if significant differences existed in the perceived informational value of specific diagnostic information types by participants, based upon their overall frequency of selection within each respective case. The frequency of use of specific diagnostic information types ranged from 0 to 30 requests by participants for Case Study A and from 0 to 28 requests in Case Study B. The mean number of requests across all types of diagnostic information listed was used as the expected value of information need, for each respective case, due to lack of procedural guidelines which could allow for a priori specification of this value. The mean also is the most representative value to be utilized in this analysis, for the same reasons that it was used previously. Application of the one-sample chi-square test of significance to these data was undertaken to determine the relative values of specific diagnostic information types to the diagnosis of individual student needs, beyond that attributable to chance alone.

Within Case Study A (Table 4.11), significant differences were found to exist between specific diagnostic information types in the number of times each was selected by participants (Chi-square = 217.48, significance = $p < .001$, degrees of freedom = 28). Likewise, within Case Study B (Table 4.12), significant differences were also found to exist between specific diagnostic information types in the number of times each was selected by participants (Chi-square = 219.98, significance = $p < .001$, degrees of freedom = 28). These results indicate that the participants placed different value on the types of diagnostic information available to them, in the apparent usefulness of each in determining the specific needs of students with handicaps.

To determine if differences or similarities existed within the diagnostic information type usage due to differences in case study characteristics, the correlated-t test was utilized (Table 4.13). Results of this analysis (Correlated-t = .98, significance = $.50 > p > .20$, degrees of freedom = 28) indicated that no statistically significant differences were identified. The correlation between the number of times that each type of diagnostic information was selected for both cases was at a fairly strong level ($r_{12} = +.64$) which was found to

TABLE 4.11

CONTRAST OF DIAGNOSTIC INFORMATION TYPES BY NUMBER OF TIMES SELECTED IN CASE STUDY A

	Diagnostic Information Type[b]																													
	CV	GI	GM	NR	OR	PY	RS	SA	UR	VS	IQ	IN	AP	PS	PM	CG	PF	TO	AT	AC	BR	SW	ES	WH	JT	VE	II	SC	O	TOTAL
Expected[a] Number	←													10.58															→	
Observed Number	0	0	26	4	27	13	0	2	0	2	14	13	14	13	11	17	15	12	2	28	8	15	7	5	1	30	18	8	2	307

Chi-Square = 217.4862 Significance = $p < .001$* Degrees of Freedom = 28

Note.

[a] Expected number equals mean number of times selected across respondents (N=31).

[b] Diagnostic information types: CV-Cardiovascular; GI-Gastrointestinal; GM-General Medical; NR- Neurological; OR- Orthopedic; PY- Psychiatric; RS- Respiratory; SA- Speech & Auditory; UR- Urological; VS- Visual; IQ- Intelligence Test; IN- Interest Inventory; AP- Aptitude Test; PS- Personality Profile; PM- Perceptual-Motor Test; CG- Course Grades; PF- Performance Report; TO- Anecdotal Record/Teacher Observations; AT- Attendance Record; AC- Achievment Test; BR- Behavior Rating Scale; SW- Social Worker Report; ES- Economic Status Report; WH- Work History; JT- On-The-Job Training Report; VE- Vocational Evaluation Report; II- Individual Interview Notes; SC- Staff Conference Notes; O- Other.

Source.

Siegel, S. *Nonparametric Statistics for the Behavioral Sciences*. New York: McGraw-Hill Book Company, 1956.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 4.12

CONTRAST OF DIAGNOSTIC INFORMATION TYPES BY NUMBER OF TIMES SELECTED IN CASE STUDY B

	Diagnostic Information Type[b]																													TOTAL
	CV	GI	GM	NR	OR	PY	RS	SA	UR	VS	IQ	IN	AP	PS	PM	CG	PF	TO	AT	AC	BR	SW	ES	WH	JT	VE	II	SC	O	
Expected[a] Number	10.34																													
Observed Number	0	0	27	1	0	13	0	23	0	1	13	12	10	10	13	18	16	9	4	27	10	17	15	5	1	28	20	6	1	300

Chi-Square = 219.98 Significance = $p < .001$* Degrees of Freedom = 28

Note.

[a] Expected number equals mean number of times selected across respondents (N=31).

[b] Diagnostic information types: CV- Cardiovascular; GI- Gastrointestinal; GM- General Medical; NR- Neurological; OR- Orthopedic; PY- Psychiatric; RS- Respiratory; SA- Speech & Auditory; UR- Urological; VS- Visual; IQ- Intelligence Test; IN- Interest Inventory; AP- Aptitude Test; PS- Personality Profile; PM- Perceptual-Motor Test; CG- Course Grades; PF- Performance Report; TO- Anecdotal Record/Teacher Observations; AT- Attendance Record; AC- Achievement Test; BR- Behavior Rating Scale; SW- Social Worker Report; ES- Economic Status Report; WH- Work History; JT- On-The-Job Training Report; VE- Vocational Evaluation Report; II- Individual Interview Notes; SC- Staff Conference Notes; O- Other.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 4.13

CONSISTENCY IN NUMBER OF TIMES A DIAGNOSTIC INFORMATION TYPE WAS SELECTED BY RESPONDENTS ACROSS CASES

Diagnostic Information Type	Number of Times Selected		Difference (A - B)
	Case Study A	Case Study B	
Medical			
Cardiovascular	0	0	0
Gastrointestinal	0	0	0
General Medical	26	27	-1
Neurological	4	1	3
Orthopedic	27	0	27
Psychiatric	13	13	0
Respiratory	0	0	0
Speech/Auditory	2	23	-21
Urological	0	0	0
Visual	2	1	1
Psychological			
Intelligence	14	13	1
Interest	13	12	1
Aptitude	14	10	4
Personality	13	10	3
Perceptual-Motor	11	13	-2
Educational			
Course Grades	17	18	-1
Performance Report	15	16	-1
Anecdotal Record/ Teacher Obs.	12	9	3
Attendance	2	4	-2
Achievement Test	28	27	1
Social/Ind. Living			
Behavior Rating	8	10	-2
Social Worker Report	15	17	-2
Economic Status	7	15	-8
Work Exp./History			
Work History	5	5	0
OJT Report	1	1	0
Vocational Evaluation	30	28	2
Casenotes			
Individual Interview	18	20	-2
Staff Conference	8	6	2
Other[a]	2	1	1
Σ	307	300	7
$\bar{X}$	10.58	10.34	0.24
S	9.06	9.01	6.84
$s_{\bar{x}}$	1.71	1.70	1.45

$$\text{Correlated } t = \frac{\bar{x}_d}{\sqrt{\dfrac{\Sigma \bar{x}_d^2}{N(N-1)}}} = .93$$

Degrees of Freedom = 28

Significance = $.50 > p > .20$ **

$r_{12} = +.84$

Note.

[a] Other includes: personal interview and reading mastery test.

Source.

Guilford, J. P. & Fruchter, B. Fundamental Statistics in Psychology and Education. New York: McGraw-Hill, Inc., 1978.

** Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

beyond the .01 level of significance. Visual inspection of these data further indicate the strong relationship that exists in the usage of specific types of diagnostic information. While several categories show extreme differences (e.g. orthopedic specialty report difference between cases = 27 and speech/auditory specialty report difference between cases = 21), primarily due to differences in the primary handicap portrayed in each respective case study, within most of the remaining categories only negligible changes in frequency of use were observed (e.g. general medical report difference = 1, course grade report difference = 1, etc.).

In summary, these analyses indicated that specific diagnostic information types:

1. Differ in the number of times that they are selected by participants within a student case study;
2. Remain relatively stable in the number of times that they are selected by participants for different student case studies; and
3. Differ in the number of times that they are selected by participants for those categories of diagnostic information that related to particular handicaps or conditions which were exhibited in each respective student case study.

Pattern of Diagnostic Information Usage

The patterns by which diagnostic information was selected by individual participants was of interest in this study and was presented in a tabular format (Appendix F, Tables 12 and 13). Likewise, the relative order in which specific diagnostic information types were selected proportionately by participants, both within individual and for combined cases, was of importance to future development of standardized operational procedures for programs. Further investigation of the relative order or value for specific diagnostic information types based upon the number of times each category was selected by participants for individual and combined case studies is important to the development of these procedures. All three of these analyses were undertaken to the extent possible, given the type of data and manner in which it was collected.

The order in which specific diagnostic information was selected by individual participants for each case was easily displayed in a tabular format (Appendix F, Tables 12 and 13). Since participants were not required to select and order every type of diagnostic information that was available to them, in most instances empty cells resulted in the matrices pertaining to each case. This factor combined with the limited number of participants in the study (N=31) disallowed any analysis pertaining to the identification of predominant ordering patterns of specific diagnostic information usage. Also, contrasts in the ordering patterns used for the two cases were impossible to carry out due to these difficulties. At this point in time, only visual comparisons can be undertaken with respect to the order of selection for individual participants within each case or for combined cases. The reader is referred to the tables representing these orders of selection (Appendix F, Tables 12 and 13) for further visual inspection. Inspection will indicate little in the way of consistency in order of selection of specific diagnostic information types (1) for participants within each case, or (2) for a participant across combined cases.

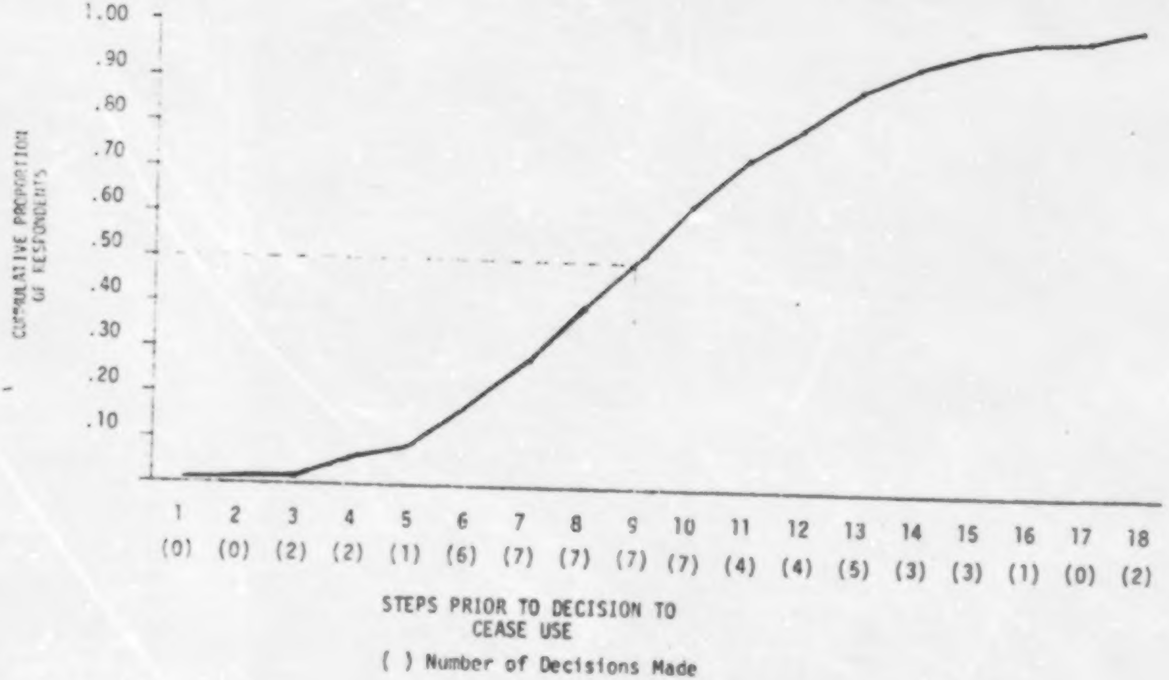
Although full investigation into the exact ordering of usage of specific diagnostic information types by individual participants was not possible, these data were useful in a number of ways including: (1) determining the typical amount of information needed by participants for these cases; (2) determining the relative order in which specific diagnostic information types were selected by all participants within each case study; and (3) determining the relative order in which specific diagnostic information types were selected by all participants for combined case studies. Analyses pertaining to each of these areas could have impact upon future procedural developments that relate to development or standardization of vocational special needs education. Additionally, ranking of specific diagnostic information types by the frequency of selection or use by participants, irregardless of the order in which they were selected, could have importance in identification of core service areas that should be considered in the development or improvement of vocational special needs education programs. Each of these analyses was completed utilizing the data exhibited in Tables 12 and 13 of Appendix F.

To determine the typical amount of information needed by participants for the cases included in this study, these data were collapsed and expressed in terms of the cummulative proportion of the participants that used a specific number of pieces of information (the total number of pieces of information selected or the final number used to signify the order in which a specific diagnostic information type was selected by a participant was considered to be the terminal step in the process of diagnosis). These data provide information related to the typical number of pieces of information that were used by participants to formulate an intial individualized education program (IEP) with the cases provided. The data were then presented in the form of a graph (Figure 4.2) which portrays the cummulative proportion of the participants that used a specific amount of information or reached a particular step (last number assigned to the order of selection of diagnostic information) for combined cases. It is the final step in the decision-making process at which the participant determined that he or she had enough information on which to develop an initial individualized education program (IEP) for the student. Data indicated that half (p = .50) of the participants reached a decision to cease use of diagnostic information prior to the ninth step or nine pieces of information used for combined cases (approximately the 8.8th step or 8.8 pieces of information used). All participants in the study (p = 1.00) used a minimum of 3 steps, or 3 pieces of information, to base their diagnosis on for combined cases.

Cummulative proportionate use of specific diagnostic information types by step for combined cases was calculated and provided in a summary tabular format (Appendix F, Table 14). Although a pattern of diagnostic information usage was provided by this manner of analysis and presentation, no strong pattern of usage is possible for these specific data. This is shown upon closer investigation of the cummulative proportionate step usage entered into the cells of the table. As each specific diagnostic information type enters into the table, based upon

FIGURE 4.2

CUMULATIVE GRAPH OF TOTAL DIAGNOSTIC INFORMATION
USED BY RESPONDENTS



its being utilized by the highest proportion of practitioners for a particular step when compared with the other diagnostic information types, it is deleted from subsequent analysis. As is shown by those values entered into the table and underlined, only a small proportionate usage of specific diagnostic information types by step at which it entered the pattern (e.g. general medical report, entered at step 1, $p = .37$) was observed. For a substantial number of diagnostic information types (e.g. staff conference notes, on-the-job training performance report, urological report, etc.), minimal proportionate usage by participants for combined cases and the maximum number of steps (or pieces of information) used was achieved. This may indicate lack of utility for particular diagnostic information types, either in general or due to the characteristics of the limited case studies used.

These data were further analyzed for responses to each case study and presented in a summary table (Table 4.14) by the proportionate usage by step (order of selection). Patterns developed by this method of analysis are limited in their generalizability to the participating group and the characteristics of the cases included. General medical report and achievement test, although they entered into the patterns in a consistent manner (step 1 and 4 respectively) were only selected for use at these steps or prior by a limited number of participants (e.g. general medical (case study a), $p_A = .32$ and (case study b), $p_B = .42$).

Visual inspection of the remaining steps and specific diagnostic

TABLE 4.14

PATTERN OF DIAGNOSTIC INFORMATION USAGE BASED UPON PROPORTIONATE USE BY STEP ACROSS CASE STUDIES

Decision Step	Simulated Case Study				Average Proportion
	Case Study A[a]	P_A[c]	Case Study B[b]	P_B[c]	
1	General Medical	.32	General Medical	.42	.37
2	Vocational Evaluation Report	.33	Speech & Auditory	.39	NA
3	Orthopedic	.64	Vocational Evaluation Report	.49	NA
4	Achievement Test	.32	Achievement Test	.38	.35
5	Course Grades	.28	Individual Interview	.34	NA
6	Performance Report	.28	Social Worker Report	.28	NA
7	Aptitude Test	.32	Course Grades	.35	NA
8	Individual Interview	.35	Performance Report	.38	NA
9	Intelligence Test	.36	Psychiatric	.41	NA
10	Social Worker Report	.39	Perceptual-Motor Test	.38	NA
11	Interest Inventory	.38	Intelligence Test	.37	NA
12	Personality Profile	.37	Interest Inventory	.37	NA
13	Perceptual-Motor Test	.34	Economic Status Report	.41	NA
14	*		Personality Profile	.30	NA

* Decision step use too low to be of value for reporting.

Note.

[a] Primary disability: orthopedic impairment; Secondary disability: academic.

[b] Primary disability: deafness; Secondary disability: social, academic and economic.

[c] Cummulative proportionate report use by step.

information type selected at or prior to each respective step, reveals little in terms of identification of any clear or strong patterns of usage. Although similar types of diagnostic information may have been selected within the first eight steps (or pieces of information used) that are typically utilized by participants for combined cases (see Figure 4.2), little consistency in the pattern of selection is evident.

Since limited strength could be found in the patterns of selection of specific diagnostic information by participants for individual or combined cases, another method of analysis was undertaken. Data were analyzed next for ordering based upon the frequency of selection irrespective of the step in which it was selected by participants. It was felt that although considerable variation occurred in the order of selection of specific diagnostic information types by individual participants, the relative value of the specific information to the total participating group could aid in determining the most appropriate diagnostic information types that should be included in vocational special needs programs or for particular handicapping conditions. The relative value of each diagnostic information type was determined by the frequency to which it was selected across participants for individual and combined cases (Table 4.15). Resulting patterns indicated that participants used specific diagnostic information types relatively consistently in terms of order by frequency of selection for the top eight types used. Exception to this observation takes place in the use of specific medical specialty reports (e.g. orthopedic specialist report and speech and auditory specialist report) which related to the primary handicap of the student characterized in the respective

TABLE 4.15

DIAGNOSTIC INFORMATION USAGE BASED UPON CUMMULATIVE FREQUENCY ACROSS CASE STUDIES

ORDER BY FREQUENCY OF USE[a]	Simulated Case Study				TOTAL FREQUENCY
	Case Study A	Frequency	Case Study B	Frequency	
1	Vocational Evaluation Report	28	Vocational Evaluation Report	30	58
2	Achievement Test	28	Achievement Test[b]	27	54
3	Orthopedic Report[c]	27	General Medical[b]	27	NA[c]
4	General Medical[c]	26	Speech & Auditory[c]	23	NA[c]
5	Individual Interview	18	Individual Interview	20	38
6	Course Grades	17	Course Grades	18	35
7	Social Worker Report[d]	15	Social Worker Report	17	32
8	Performance Report[d]	15	Performance Report	16	31

Note.

[a] Order based upon cummulative number of respondents selecting specific diagnostic information type across steps and includes only those types used by 50% or more of the sample.

[b] Diagnostic information types tied for this case study.

[c] Order of useage for general medical and medical specialist reports is similar except for negligible differences between case studies. Frequency of use of specific medical information type equals: General Medical = 53; Medical Specialist Report (related to primary handicapping condition) = 50.

[d] Diagnostic information types tied for this case study.

case study. The preference for use of diagnostic information types was fairly consistent across both case studies, except for a few instances in which a minimal difference in the frequency of selection was observed (e.g. general medical report was selected by 26 participants in Case Study A and 27 participants in Case Study B). Data pertaining to the order by frequency of use (Table 4.15) was presented only for the first eight types that were used, since this most accurately reflects the extent of diagnosis that was undertaken by the typical study participant (see Figure 4.2 and discussion).

In summary, these data show that when a wide number of types of diagnostic information was available to participants on the cases included in the study, then:

1. Typically participants used less than 9 pieces of information (or less than 9 steps) to formulate an initial individualized education program (IEP) for the case;
2. Information was not selected for use in the same order by different participants;
3. Individuals tended to be consistent in the amount of information that they used to diagnose the needs of students represented in the cases;
4. Certain types of diagnostic information (e.g. vocational evaluation report, achievement test, general medical report, individual interview, course grades, social worker report and performance report) were used most frequently by participants for different cases representing students with different

handicaps; and

5. Specific types of diagnostic information that relate to the primary and secondary handicapping conditions of the particular student case being worked with, were utilized by most practitioenrs, particularly in the first few steps of information selection.

Impact of Respondent Characteristics on Amount of Diagnostic Information Used

A secondary interest area in this study was that of the intensity in use of diagnostic information by certain groups of participants, pertaining to the impact of demographic characteristics on the number of pieces of information used. Analysis of the data beyond this level, such as that pertaining to patterns of diagnostic information used, was beyond the scope of this study and not possible given the restraints of the data which resulted.

For this purpose, the number of pieces of diagnostic information used by participants for combined cases was utilized in the comparisons made between groups. Comparison groups were formed using the responses of participants to the various questions included in Section II of the data collection questionnaire (Appendix D). Comparison groups were based upon: licensure-job title presently assigned to participant; percentage of job duties devoted to diagnosis and prescription; highest level of academic preparation presently achieved; field of preparation in which the highest academic preparation was obtained; and years of teaching experience. Data were collapsed across response categories in those situations where empty cells occurred (e.g. equal numbers of individuals were assigned to the following intervals of percentage of time devoted to diagnostic and prescriptive duties: 0 - 30%; 31 - 60%; and 61 - 100%). The extension of the median test (Siegel, 1956) was applied to test if significant differences in the number of pieces of information used by these groups for combined cases existed beyond that attributable to chance. This test was felt to be appropriate since it reacted to the direction of the distribution for each sub-group (i.e. skewed to left or right) and the number of groups used for comparison (more than two in each analysis).

Comparison of the amount of information (number of pieces of diagnostic information) used for combined cases by groups based on licensure-job title (e.g. special needs supervisor, support service manager, vocational instructor - evaluator, and other) indicated that significant differences exist beyond the .001 level (Chi-square = 17.09, significance = $p > .001$, degrees of freedom = 3) (Appendix F, Table 15). Those groups which included personnel which most frequently have the responsibility for developing and carrying out diagnostic-prescriptive activities for students with handicaps (e.g. support service manager and vocational instructor-evaluator) tended to use fewer pieces of diagnostic information (8.5 and 9.5 pieces respectively) to determine student needs than the remaining groups (special needs supervisor and other).

In analyzing the differences in number of pieces of information used for groups based upon the percentage of job duties that are focused on diagnosis and prescription, collapsing of response categories became necessary to form equal sized and managable comparison groups. Three groups were formed including: 0 - 30% (N=20); 31 - 60% (N=20); and 61 - 100% (N=22). No statistically significant differences were found to exist between these groups in the number of pieces of diagnostic information used for combined cases (Chi-square = 2.313, significance = $.50 > p > .30$, degress of freedom = 2). Within the limits of this study, this indicates that variability in the number of pieces of diagnostic information that was used by participants was not necessarily brought about by the amount of time they actually spent in providing these services to students with handicaps (Appendix F, Table 16). However, it should be noted that this analysis was completed after combining responses for all participants. Further investigation of these data indicated that 84.2 percent (16 of 19 participants) of the Vocational Instructor-Evaluators and Support Service Managers as opposed to 41.7 percent (5 of 12) of the Special Needs Supervisors and Other spend 31 percent or more of their time on diagnostic and prescriptive duties. Of this latter group (the Other category), 2 of the participants functioned in roles of Vocational Counselor and Remedial Related Instructor-Reading. These data indicated that while special needs personnel that provide direct services to handicapped students (e.g. Vocational Instructor-Evaluator, Support Service Manager, Vocational Counselor, Remedial Related Instructor) spend a considerable portion of their work time (more than 31 percent) they use less diagnostic information than other practitioners as a group.

Analysis of data attributed to the highest level of education attained by participants (Appendix F, Table 17) required deletion of one participant due to lack of possession of any advanced academic preparation. The number of pieces of diagnostic information used by participants for combined cases was analyzed using the extension of the median test for k groups (Siegel, 1956): those possessing baccalaureate degrees; and those possessing master's degrees. Significant differences between these groups were found to exist (Chi-square = 35.10, significance = $p < .001$, degrees of freedom = 1) to exist in the number of pieces of diagnostic information used to determine handicapped student needs. Inspection of these data indicated that those participants holding master's degrees used fewer pieces of diagnostic information (median = 9.6) than those holding baccalaureate degrees (median = 10.5). These data, within limitations specified for the study, appear to indicated that higher academically prepared individuals (master's degree vs. baccalaureate degree) tend to use less information for the development of an initial individualized education program for these cases.

Analysis of these data was then undertaken for comparison groups based upon the field in which the participants had received their highest academic preparation (Appendix F, Table 18). Five comparison groups were developed including: Vocational-Industrial-Home Economics Education; Special Education; Vocational Rehabilitation; Counseling; and Other. Statistically significant differences in the number of pieces of diagnostic information used for combined cases was found to exist between these groups (Chi-square = 28.22, significance = $p < .001$, degrees of freedom = 4). Those groups receiving higher academic preparation in fields specifically focused on handicapping conditions and diagnostic-prescriptive processes (e.g. special education and vocational rehabilitation) used less diagnostic information to base the development of an initial individualized education program (IEP) (median = 7.5 and 8.6 respectively) than the other groups.

Finally, data were combined for cases and analyzed for group differences based upon number of years of teaching experience. Four comparison groups were formed including: 1 - 4 years (N=16); 5 - 9 years (N=20); 10 - 14 years (N=14); and 15 years and over (N=12). No statistically significant differences were found to exist between the amount of information used by these groups at typically established levels (Chi-square = 5.06, significance = $.20 > p > .10$, degrees of freedom = 3)(Appendix F, Table 19).

These data tend to indicate that participants in the study used differing amounts of diagnostic information when evaluated by groups based upon job role, level of academic preparation completed, and the field in which the highest level of academic preparation was obtained. As the job role moved toward increasing direct contact with handicapped students and service provision, the amount of information used decreased. As the level of formal academic preparation increased, the amount of information used decreased. As the field of academic preparation moved toward specific training in handicapping conditions and diagnostic-prescriptive processes, the amount of information used decreased.

Variability in Educational Prescription

Upon making a decision to cease the use of diagnostic information for each case study, participants were then to develop an initial individualized education program (IEP) based upon the materials which they had selected. The initial individualized education program (IEP) would serve the purpose of providing the most conducive learning environment for the particular student, as they entered into the vocational training program selected. This initial individualized education program consisted of: selection of the most appropriate program placement (e.g. regular class, special class, modified program, or pre-vocational program); selection of appropriate program modifications necessary, if any; and selection of the specific special educational support services that were required, if any; to remediate the potential difficulties that the student could experience in their attempts to participate and succeed in the vocational training program selected. The initial individualized education program (IEP) specified by the participants was summarized for Case Study A and B in a tabular format (Appendix F, Tables 20 and 21 respectively). Marginal frequencies at the bottom of each table indicate the total number of program modifications and special educational support services that were used by each participants. Marginal frequencies listed along the right-hand column of each table indicate the total number of participants that selected a particular program placement type, program modification or special educational support service. As is readily apparent in viewing each of these tables, extreme variability took place between participants in their formulation of an initial IEP for each case.

These differences in initial IEP for each case should not necessarily be surprising, especially upon considering the significant differences which were found to exist in the amounts and types of diagnostic information that was utilized by individual participants in each case. Although a common base of information was available to each participant as they undertook the diagnostic activity for each case study, this common base did not necessarily exist once the participants entered into the prescriptive activity due to the differences in their usage of diagnostic information. Nevertheless, consistency in the type of individualized education program prescribed by individual practitioners should be expected, at least in theory, when they are faced with a specific student with established primary and secondary handicapping characteristics. At times, similar information is presented in different diagnostic reports, or some reports provide information that is not totally relevant to the development of an IEP. Consistency in the prescription of program placements, modifications and special educational support services by practitioners for a student having specific needs is desirable in creating a least restrictive educational environment and providing quality educational opportunity for the handicapped. Although certain students may require additional services, alternative class placements or specific modifications to the learning environment in order to participate or succeed, due to the impacts of severe or multiple handicaps on their functioning, the appropriate prescription of these services still is desired as part of the IEP. Visual inspection of these data (Appendix F, Tables 20 and 21) give the reader a sense of the differences that exist between the prescriptions formulated by the participants, however, further empirical analyses are warranted to understand the significance of these differences between individual participants within each case or across the two cases.

The following discussion addresses the variations which occurred and the patterns that resulted when the participants formulated an initial IEP for individual and combined cases. The flow of discussion is such that the prescription of program placement types is completed prior to that of program modifications or special educational support services. Each of these aspects of the IEP's formulated are discussed independently to aid the reader in understanding and for a clearer presentation of the results of the study. Within each of these aspects of the discussion, the variability of participants and specific service types (program placements, modifications and special educational support services) is discussed in depth. Major concerns addressed within each of these aspects include: contrasting participants and service types within individual cases; assessing the consistency of participants and service types for combined cases; and determining the pattern(s) of usage of services for individual and combined cases (refer to Figure 4.1).

Types of Program Placement Used

Participants were instructed to select only one type of program placement for each case study. The responses of these participants for Case Study A and B were then placed in a summary format (Appendix F, Tables 20 and 21 respectively). Four forms of analysis were then undertaken for this segment of the IEP's that were developed: (1) consistency of individual participants in their selection of program placement type for both cases; (2) contrast between program placement type by their frequency of selection within individual cases; (3) consistency in the frequency of selection of program placement type for both cases; and (4) identification of selection pattern(s) of program placement type for individual and combined cases.

Since individual participants had only one choice to make for each case, no variability is existent in their selection of program placement type within individual cases. However, the consistency of individual participants in their selection of specific program placement types between the two cases is possible to assess. Using the chi-square analysis for two independent groups (Siegel, 1956), this analysis was undertaken. Although the same study participants were being dealt with for both cases in this analysis, their responses were gathered under different circumstances (differences existed in student handicaps exhibited and vocational training program in which placement was to take place). For this reason, the chi-square test for two independent groups was felt to be the most appropriate statistic for use. Although no significant differences were found to exist between the program placement type selected by individual participants for the cases (Chi-square = -0.63, significance = $p > .95$, degrees of freedom = 4), it must be noted that 16 of the 31 participants changed in their selection from Case Study A to Case Study B. Also, 15 participants remained unchanged in their selection of program placement type from Case Study A to Case Study B. Lack of finding of significant differences in the selections of participants for program placements in these cases is due partially to the similarity in distributions of the frequencies at which specific types were selected and the balancing effect that was brought about by the particular manners of cross-over in selection which took place.

Next, the one-sample chi-square test of significance was utilized to contrast the frequency of use of program placement types within each case study. The mean number of responses made by participants (mean = 7.75) was used as the expected value for this analysis for the same reasons as it was used in previous analyses on diagnostic information usage. Significant differences in the frequency of selection of specific program placement types by participants was found in both Case Study A (Chi-square = 16.61, significance = $p < .001$, degrees of freedom = 3) and in Case Study B (Chi-square = 21.77, significance = $p < .001$, degrees of freedom = 3). These analyses indicated that participants differed in their selection of the most appropriate setting (program placement) in which instruction for each of these students should be offered. The special class response was not used by any of the participants for either study, while the remaining three program placement types were used variably by the participants (regular class, modified program and pre-vocational program) in both Case Study A and Case Study B (Appendix F, Tables 23 and 24 respectively).

The correlated-t test was utilized to assess the consistency in selection of program placement types by participants across the two cases (Table 4.16). The frequency of selection for each type of program placement for each study was entered into the analysis. Findings indicated that no significant differences were existent in the frequency of selection of specific program placement types by participants across the two cases (Correlated-t = 0.00, significance = $p > .99$, degrees of freedom = 3). High positive correlation was found to exist between the frequencies of selection of specific program placement types from case to case ($r_{12} = + 0.98$) which was well beyond that which could be attributed to chance ($p_r < .01$). Visual inspection of these data indicated that modified programs were used by over half of the participants within each case. Regular class placements and pre-vocational training programs were used approximately equally, accounting for about one-quarter of the selections made in each case respectively.

Although data thus far have pointed out the variability in selection of specific program placement types both within and across

TABLE 4.16

CONSISTENCY IN USAGE OF PROGRAM PLACEMENT TYPES BY RESPONDENTS ACROSS CASES

Program Type	Case Study		D
	A	B	(A-B)
Regular	7	7	0
Special	0	0	0
Modified	16	18	-2
Pre-Vocational	8	6	2
Σ	31	31	0
$\overline{X}$	7.75	7.75	0.00
S	5.67	6.49	1.41
$s_{\bar{x}}$	2.83	3.24	0.70

$$\text{Correlated } t = \frac{\overline{X}_d}{\sqrt{\dfrac{\Sigma x_d^2}{N(N-1)}}} = 0.00$$

Degrees of Freedom = 3
Significance = $p > .99$[*]
r_{12} = + 0.98

Source.

Guilford, J. P. and Fruchter, B. *Fundamental Statistics in Psychology and Education*. New York: McGraw-Hill, Inc., 1973.

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[*] Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

cases had taken place, it was felt that some important clues as to preferred methods of instruction could still be derived from it. The frequency of selection by participants for specific program placement types was presented in a tabular format for combined and individual cases (Tables 4.17 and 4.18 respectively). The ordering of specific program placement types was by the number and percentage of participants selecting each for combined (N=62) and individual cases (N=31). The specific program placement type selected most often was ranked number 1, the second most frequently used number 2, and so on. Those specific program placement types that tied in frequency of selection were ranked the same. Ordering of program placement types by frequency of selection for combined cases (Table 4.17) indicated that modified programs are the most preferred method of providing instruction to the students represented in the study. Regular and pre-vocational programs were used less frequently than modified programs, but in equal intensity (22.6% for each). Special programs were not utilized by any of the participants (0.0%) for either of the cases.

Order of program placement types by frequency of selection within each of the two cases (Table 4.18) potentially provides information relevant to the preferred manner of instruction for students having different handicaps. Modified programs continue to be the preferred manner of placement for students with handicaps in each of the cases. Although the order of preference (frequency of selection) for the regular and pre-vocational program options reverses from case to case, there is only minimal disparity in the frequency of selection of each type within or between cases. Again, special program placements were

TABLE 4.17

PATTERN OF USAGE OF PROGRAM PLACEMENT TYPES BY RESPONDENTS FOR COMBINED CASES

Order	Program Type	Number	Percent
1	Modified	34	54.8
2.5	Regular	14	22.6
2.5	Pre-Vocational	14	22.6
4	Special	0	0.0
	Total	62	100.0

TABLE 4.18

PATTERN OF USAGE OF PROGRAM PLACEMENT TYPES BY RESPONDENTS
FOR CASE STUDY A AND CASE STUDY B

Order	Case Study A			Order	Case Study B		
	Program Type	Number	Percent		Program Type	Number	Percent
1	Modified	16	51.6	1	Modified	18	58.1
2	Pre-Vocational	8	25.8	2	Regular	7	22.6
3	Regular	7	22.6	3	Pre-Vocational	6	19.4
4	Special	0	0.0	4	Special	0	0.0
	Total	31	100.0		Total	31	100.1[a]

Note.

[a] Exceeds 100.0 due to rounding.

not selected as preferred manners of instruction for either case.

In summary, these data tend to emphasize that participants preferred to instruct the students represented in this study in a least restrictive classroom environment (e.g. modified, regular or pre-vocational program) rather than isolating them in special classes or programs. However, participants disagreed in their determination of what is the most appropriate learning environment for an individual student. About half of the participants in the study prescribed the same type of program placement for both cases, while the other half tended to change their selections when case characteristics changed.

Program Modifications Used

Participants were instructed to select as many program modifications as they felt were necessary to meet the specific needs of the handicapped student portrayed in Case Study A and Case Study B (Appendix F, Tables 20 and 21 respectively). Analysis was then undertaken for this segment of the IEP's that were developed to: (1) contrast the number of program modifications selected by participants within each case; (2) determine the consistency in number of program modifications selected by a participant across both cases; (3) contrast the frequency of selection of specific program modifications across participants for each case; (4) determine the consistency in frequency of selection of specific program modifications across cases; and (5) identify selection pattern(s) of program modifications for individual and combined cases.

The one-sample chi-square test of significance (Siegel, 1956) was once again utilized to contrast the frequency of use of program modifications by individual participants within Case Study A and Case Study B (Appendix F, Tables 25 and 26 respectively). The mean number of program modifications selected by all participants in Case Study A (mean = .774) and Case Study B (mean = 1.516) were utilized as the expected value for each respective analysis. No significant differences were found to exist between participants in the number of program modifications which they selected for Case Study A (Chi-square = 30.26, significance = $.50 > p > .30$, degrees of freedom = 30). Likewise, no significant differences were found to exist within Case Study B, between the number of program modifications that were selected by individual participants (Chi-square = 27.54, significance = $.70 > p > .50$, degrees of freedom = 30). Although individual participants did not tend to differ significantly in the number of program modifications they selected for each case, the mean number of services selected increased as the complexity of the case increased (student represented in Case Study B had a total of 4 handicapping conditions while in Case Study B only 2 handicapping conditions were present).

The correlated-t test was then utilized to assess the consistency of participants in the number of program modifications they selected for the two cases (Appendix F, Table 27). Analysis indicated that statistically significant differences existed between the number of program modifications used by each participant from case to case (Correlated-t = -1.927, significance = $.10 > p > .05$, degrees of freedom = 30). Minimal correlation was found to exist between the numbers of program modifications used by each participant in the two cases ($r_{12} = +0.34$), which was statistically significant beyond the .10 level ($p_r = .10 > p > .05$).

These data indicate that differences did exist in the amount of program modifications that were selected by participants for cases representing students with different handicapping conditions.

The one-sample chi-square test of significance was next utilized to contrast the frequency of use of program modification types within each case study. The frequency of selection of each program modification type by participants for each case was utilized as the observed values in these analyses. The mean number of times that all types of program modification were selected for Case Study A (mean = 4.80) and Case Study B (mean = 9.40) by the participants was used as the expected value in these analyses (Appendix F, Tables 28 and 29 respectively). Significant differences in the frequency of selection of specific program modification types by participants within Case Study A (Chi-square = 11.42, significance = $.05 > p > .02$, degrees of freedom = 4) and Case Study B (Chi-square = 20.77, significance = $p < .001$, degrees of freedom = 4) were found to exist. These analyses also indicated that the mean number of times that each of the program modifications were selected increased from Case Study A (mean = 4.80) to Case Study B (mean = 9.40), the latter case being the more complex in terms of number of handicapping conditions being present.

The correlated-t test was then utilized to assess the consistency in selection of specific program modification types across participants for the two cases (Table 4.19). The frequency of selection for each type of program modification type was entered into the analysis. Findings indicated that no significant differences existed in the frequency of selection of specific program modification types by participants across

TABLE 4.19

CONSISTENCY IN USAGE OF PROGRAM MODIFICATION TYPES
BY RESPONDENTS ACROSS CASES

Program Modifications	Case Study		D
	A	B	(A-B)
Schedule-Length of Program	7	13	-6
Curriculum	2	16	-14
Equipment	10	4	6
Facility	1	0	1
Supportive Audio-Visual Materials	4	14	-10
Σ	24	47	-23
$\bar{X}$	4.80	9.40	-4.60
S	3.70	6.98	7.25
$s_{\bar{x}}$	1.65	3.12	3.24

$$\text{Correlated } t = \frac{\bar{X}_d}{\sqrt{\frac{\Sigma x_d^2}{N(N-1)}}} = -0.77$$

Degrees of Freedom = 4
Significance = $.50 > p > .40$*
$r_{12} = -0.06$

Source.

Guilford, J. P. and Fruchter, B. Fundamental Statistics in Psychology and Education. New York: McGraw-Hill, Inc., 1973.

*Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

the two cases (Correlated - t = -0.77, significance = $.50 > p > .40$, degrees of freedom = 4). Further, no relationship appeared to exist between the number of times that each of the program modification types was selected for each of the cases ($r_{12} = -0.06$), the significance of the correlation falling well beyond that attributable to chance ($p_r < .10$). Inspection of these data indicated that facility modifications were used very infrequently, perhaps due to the nature of the handicaps presented in the cases. However, the remaining categories (schedule-length of program, curriculum, equipment, supportive audio-visual materials) showed substantial differences in their frequency of use from case to case (differences between cases ranging from 6 to 14). These results appear to indicate that the use of specific program modifications tend to vary according to student characteristics that are presented (handicapping conditions).

As with the analyses completed on the use of program placement types, these data have pointed out the variability existed in the use of program modification types from case to case. However, it is also felt that some important clues as to appropriate manners of modifying educational environments for individual students with handicaps can be derived from further analysis of these data. The frequency of selection by participants for specific program modification types were presented in a tabular format for combined and individual cases (Tables 4.20 and 4.21 respectively). The ordering of specific program modifications was by the number and percentage of participants selecting each for combined (N=71) and individual cases (Case A: N=24; Case B: N=47). The specific program modification type selected most often was ranked number 1, the second most frequently used number 2, and so on. Those specific program modifications that tied in frequency of selection were ranked the same. Ordering of program modification types by frequency of selection for combined cases (Table 4.20) indicated that schedule-length of program modifications was the most often selected service (28.2%), followed closely by the use of curriculum modifications and supportive audio-visual materials (tied at 25.4%). Equipment modification was used slightly less frequently than the previous three types (19.7%), with facility modification being selected only negligibly (1.4%).

The order of program modification types by frequency of selection within each of the two cases (Table 4.21) potentially provides information relevant to the identification of appropriate adaptations to learning environments that are necessary for different handicapping conditions. Data on the frequency of selection of specific program modifications for individual cases shows considerable differences to exist in their use with students having different handicaps. Within Case Study A, equipment modification is most frequently selected (41.7%) possibly due to an orthopedic handicap (amputation) being the primary condition posed by the student. The four other categories of program modification are utilized to a lesser extent with this case: schedule-length of program (29.2%); supportive audio-visual materials (16.7%); curriculum (8.3%); and facility modification (4.2%). The use of these other program modification types potentially relate to the secondary handicap of the student (specific learning problem-reading) and inter-

TABLE 4.20

PATTERN OF USAGE OF PROGRAM MODIFICATION TYPES
BY RESPONDENTS FOR COMBINED CASES

Order	Program Modification	Number	Percent
1	Schedule/Length of Program	20	28.2
2.5	Curriculum	18	25.4
2.5	Supportive Audio-Visual Matls.	18	25.4
4	Equipment	14	19.7
5	Facility	1	1.4
	Total	71	100.1[a]

Note.

[a] Exceeds 100.0 due to rounding.

TABLE 4.21

PATTERN OF USAGE OF PROGRAM MODIFICATION TYPES BY RESPONDENTS FOR CASE STUDY A AND CASE STUDY B

Order	Case Study A			Order	Case Study B		
	Program Modification	Number	Percent		Program Modification	Number	Percent
1	Equipment	10	41.7	1	Curriculum	16	34.0
2	Schedule/Length of Program	7	29.2	2	Supportive Audio-Visual Materials	14	29.8
3	Supportive Audio-Visual Materials	4	16.7	3	Schedule/Length of Program	13	27.7
4	Curriculum	2	8.3	4	Equipment	4	8.5
5	Facility	1	4.2	5	Facility	0	0.0
	Total	24	100.1[a]		Total	47	100.0

Note.

[a] Exceeds 100.0 due to rounding.

interactions between the handicaps and student characteristics present. Within Case Study B, curriculum modification was selected most frequently (34.0%), followed closely by suportive audio-visual materials (29.8%) and schedule-length of program (27.7%). As the primary handicap of the student presented in this case was congenital deafness, with secondary conditions of socialization problems, economic disadvantagement and specific learning problems (reading and math) also being present, these services appear to be appropriately identified. Equipment modifications were only used to a negligible degree for this case (8.5%), with facility modifications not being selected by any of the participants (0.0%).

These data tend to emphasize that participants used differing amounts and types of program modification specifically relating to the handicapping conditions presented for different student cases.

Special Educational Support Services

Participants were next instructed to select as many special educational support services as they felt were necessary to meet the specific needs of the handicapped student portrayed in Case Study A and Case Study B (Appendix F, Tables 20 and 21 respectively). Analysis was then undertaken for this segment of the IEP's that were developed in order to: (1) contrast the number of special educational support services that were selected by participants within each case; (2) determine the consistency in number of special educational support services selected by a participant across both cases; (3) contrast the frequency of selection of specific special educational support services across participants for each case; (4) determine the consistency in frequency of selection of specific special educational support services across cases; and (5) identify selection pattern(s) of special educational support services for individual and combined cases.

The one-sample chi-square test of significance (Siegel, 1956) was utilized to contrast the frequency of use of special educational support services by individual participants within Case Study A and Case Study B (Appendix F, Tables 30 and 31 respectively). The mean number of special educational support services selected by all participants in Case Study A (mean = 6.645) and Case Study B (mean = 11.419) were utilized as the expected values for each respective analysis. Significant differences were found to exist between participants in the number of special educational support services which they selected for Case Study A (Chi-square = 59.41, significance = $.01 > p > .001$, degrees of freedom = 30). Likewise, significant differences were found to exist within Case Study B, between the number of special educational support services selected by individual participants (Chi-square = 59.57, significance = $.01 > p > .001$, degrees of freedom = 30). Further observation of these data indicated that as the case increased in complexity because of the number of handicapping conditions being represented, the mean number of special educational support services selected also increased. This indicates that as complexity and severity of the handicapping conditions increase, the number of special educational support services judged necessary to remediate functional deficiencies also increases.

The correlated-t test was then utilized to assess the consistency of participants in the number of special educational support services they selected for the two cases (Appendix F, Table 32). Analysis indicated that significant differences existed between the number of special educational support services that were used by each participant from case to case (Correlated-t = -1.96, significance = $.10 > p > .05$, degrees of freedom = 30). Moderate correlation was found to exist between the numbers of special educational support services used by each participant in the two cases ($r_{12} = +0.58$), which was significant beyond the .01 level ($p_r < .01$). These data tend to emphasize differences in the number of special educational support services that are used by participants for students with differing handicaps. The number of services used by individual participants tend to increase as the complexity of the student case increases.

The one-sample chi-square test of significance was next utilized to contrast the frequency of use of special educational support services within each case study. The frequency of selection of each special educational support service by participants for each case was utilized as the observed values in these analyses. The mean number of times that all types of special educational support services were selected for Case Study A (mean = 9.40) and Case Study B (mean = 11.06) by the participants was used as the expected value in these analyses (Appendix F, Tables 33 and 34 respectively). Significant differences in the frequency of selection of specific special educational support services by participants within Case Study A (Chi-square = 264.38, significance = $p < .001$, degrees of freedom = 31) and Case Study B (Chi-square = 241.76, significance = $p < .001$, degrees of freedom =31) were found to exist. These analyses also indicated that the mean number of times that special educational support services were selected increased from Case Study A (mean = 9.40) to Case Study B (mean = 11.06), the latter case being the more complex in terms of number of handicapping conditions being present.

The correlated-t test was then utilized to assess the consistency in selection of specific special educational support services across participants for the two cases (Table 4.22). The frequency of selection for each type of special educational support service type was entered into the analysis. Findings indicated that no significant differences existed in the frequency of selection of specific special educational support service types by participants across the two cases (Correlated-t = -1.54, significance = $.20 > p > .10$, degrees of freedom = 31) at levels typically used in analyses of this type (e.g. .10, .05 or .01). Further, only a moderate relationship was found to exist between the number of times that each of the special educational support service types was selected for each of the cases ($r_{12} = +0.45$), the significance of this correlation falling beyond the .01 level ($p_r < .01$). Visual inspection of these data reveals that except for bilingual remedial and reader for the blind services (characteristics and needs not represented in the two cases), all of the services were utilized in at least one of the cases. Several of the supportive services identified show considerable differences in their use between cases (e.g. socialization skill training, speech and language therapy, sign language, special devices for the student, interpretor for the deaf, tool purchase, tuition waiver/financial aids, maintenance and

TABLE 4.22

CONSISTENCY IN USAGE OF SPECIAL EDUCATIONAL SUPPORT SERVICES BY RESPONDENTS ACROSS CASES

Special Educational Support Services	Case Study		D
	A	B	(A-B)
Remedial			
Mathematics	15	20	-5
Reading	28	24	4
Technical Tutor	15	23	-8
Bilingual	0	0	0
Socialization	4	22	-18
Vocational Guidance			
Career Guidance	14	9	5
Career Exploration	11	5	6
Counseling-Testing			
Personal-Family Counseling	8	14	-6
Testing-Assessment	2	5	-3
Referral-Other Agency	0	2	-2
Employability Skills Training			
Job Seeking/Keeping	18	22	-4
Placement Assistance	21	20	1
Communications			
Writing Skills	7	10	-3
Language Instruction	1	5	-4
Speech/Language Therapy	0	11	-11
Sign Language	0	20	-20
Transportation			
Mobility Training	2	0	2
Van/Adaptive Vehicle	2	1	1
Public Conveyance	5	10	-5
Special Devices for the Student	3	18	-15
Reader/Interpretor			
Interpretor for the Deaf	0	29	-29
Reader for the Blind	0	0	0
Interpretor/Bilingual	0	1	-1
Direct Educational Support Services			
Tool Purchase	2	16	-14
Tuition Waiver/Financial Aid	9	26	-17
Payment for Job Trng Site	3	5	-2
Non-Direct Educational Support Services			
Maintenance	7	19	-12
Prosthetic Devices	17	0	17
Medical-Dental Asst.	2	3	-1
Adaptive Home Equip.	0	1	-1
Aide/Companion	0	1	-1
Other Supportive Services[a]	10	12	-2
Σ	206	354	-148
$\bar{X}$	6.43	11.06	-4.62
S	7.40	9.28	8.73
$s_{\bar{x}}$	1.30	1.64	1.54

Correlated $t = \dfrac{\bar{x}_d}{\sqrt{\dfrac{\Sigma x_d^2}{N(N-1)}}} = -1.54$

Degrees of Freedom = 31

Significance = $.20 > p > .10$*

$r_{12} = +0.45$

Note.

[a] Includes:

Source.

Guilford, J. P. and Fruchter, B. Fundamental Statistics in Psychology and Education. New York: McGraw-Hill, Inc., 1973.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

prosthetic devices) that appear to relate strongly to the primary handicaps (orthopedic impairment and congenital deafness) and secondary characteristics (specific learning disabilities, social problems, and economic disadvantagement) that were characterized by each of the cases. These differences are readily observed by reviewing the changes in frequency of selection listed in the difference column (D). Several of the special educational support services were found to be relatively consistent in their frequency of selection between the two cases (e.g. remedial reading and math, career guidance and exploration, personal-family counseling, testing-assessment, referral to other agency, job seeking/keeping, placement assistance, writing skills, language instruction, mobility training, van/adaptive vehicle, public conveyance, payment for job training site, medical-dental assistance, adaptive home equipment, aide/companion, and other). The majority of these services related to general skills that would be necessary for anyone to function in a training or employment setting, or were used only by a negligible number of participants in either case (e.g. medical-dental assistance was selected by two participants for Case Study A and by three in Case Study B). These results appear to indicate that the use of specific educational support services varies both by the preferences of individual practitioners and by the student characteristics that are presented (e.g. handicapping conditions).

As with the analyses completed on the use of program placement and modification types, these data also have pointed out the variability existent in the use of special educational support services from case to case. However, some important clues as to appropriate instructional services for students with handicaps may be gleaned from further analyses of these data. The frequency of selection by participants for specific special educational support services was presented in a tabular format for combined and individual cases (Tables 4.23 and 4.24 respectively). The ordering of specific special educational support services for combined (N=62) cases was accomplished using the relative frequency that each type was selected (number selecting/total number of participants). The order of specific special educational support services for individual cases was accomplished in a similar manner with N=31 for each case. The specific special educational support service selected most frequenctly was ranked number 1, the second most frequently selected number 2, and so on. Those specific special educational support services that tied in frequency of selection were ranked the same. Order of special educational support services by frequency of selection for combined cases (Table 4.23) indicated that remedial reading was by far the most frequently selected service (83.9%). Heavy usage of special educational support services was also found for: placement assistance (66.1%); job seeking/keeping skills (64.5%); technical tutor (61.3%); remedial math and tuition waiver/ financial aids (56.4%); interpreter for the deaf (46.8%); socialization skills and maintenance (41.9%); career guidance (37.1%); personal-family counseling and other supportive services (e.g. typing, practical living skills, etc.) (35.5%); and special devices for the student (e.g. tele-typewriter for the deaf, color-coded equipment, etc.) (33.9%). Other special educational support services were used to a minimal or to no extent at all including: sign language (32.3%); tool purchase

TABLE 4.23

PATTERN OF USAGE OF SPECIAL EDUCATIONAL SUPPORT SERVICES BY RESPONDENTS FOR CASE STUDY A AND CASE STUDY B

Order	Special Educational Support Services	Number	Percent[a]
1	Reading (Remedial)	52	83.9
2	Placement Assistance (Employability Skills Training)	41	66.1
3	Job Seeking/Keeping Skills (Employability Skills Training)	40	64.5
4	Technical Tutor (Remedial)	38	61.3
5.5	Mathematics (Remedial)	35	56.4
	Tuition Waiver/Financial Aids (Direct Ed. Support Services)	35	56.4
7	Interpretur for the Deaf (Reader/Interpretor)	29	46.8
8.5	Socialization Skills (Remedial)	26	41.9
	Maintenance (Non-Direct Ed. Support)	26	41.9
10	Career Guidance (Voc. Guidance)	23	37.1
11.5	Personal-Family Counseling (Counseling-Testing)	22	35.5
	Other Supportive Services[b]	22	35.5
13	Special Devices for the Student[c]	21	33.9
14	Sign Language (Communications)	20	32.3
15	Tool Purchase (Direct Ed. Support)	18	29.0
16.5	Writing Skills (Communications)	17	27.4
	Prosthetic Devices (Non-Direct Ed.)	17	27.4
18	Career Exploration (Voc. Guidance)	16	25.8
19	Public Conveyance (Transportation)	15	24.2
20	Speech/Language Therapy (Comm.)	11	17.7
21	Payment-Job Training Site (Direct Ed.)	8	12.9
22	Testing-Assessment (Counseling-Testing)	7	11.3
23	Medical-Dental Assistance (Non-Direct Ed. Support Services)	5	8.1
24	Van/Adaptive Vehicle (Transportation)	3	4.8
25.5	Referral-Other Agency (Counseling-Testing)	2	3.2
	Mobility Training (Transportation)	2	3.2
28	Interpretor/Bilingual	1	1.6
	Adaptive Home Equip. (Non-Direct)	1	1.6
	Aide/Companion (Non-Direct)	1	1.6
30.5	Bilingual Instruction (Remedial)	0	0.0
	Reader for the Blind	0	0.0

Note.

[a] Percent based upon number of respondents (N=62).

[b] Includes: typing; practical living skills; physical therapy; use of work samples; training tryout; counseling for acceptance of disability; independent living skills; supportive counseling; students who sign; work study; front of of class placement; group home placement;social-recreational activities, supportive peer group involvement; part-time employment, deaf preparatory program; note-taker; financial aid assistance.

[c] Includes: Tele-typewriter for the deaf; color-coded equipment; hearing aid; hard hat for identification in hazardous situations.

(29.0%); writing skills and prosthetic devices (27.4%); career exploration (25.8%); public conveyance (24.2%); speech/language therapy (17.7%); payment for job training sites (12.9%); testing-assessment (11.3%); medical-dental assistance (8.1%); van/adaptive vehicle (4.8%); referral to other agency and mobility training (3.2%); interpreter/bilingual aid, adaptive home equipment and aide/companion (1.6%): and bilingual instruction and reader for the blind (0.0%).

The order of special educational support services by frequency of selection within each of the two cases (Table 4.24 potentially provides information relevant to the identification of appropriate supports for individual students that become necessary to overcome the effects of handicapping conditions. Data on the frequency of selection of specific special educational support services for individual cases would represent a lengthy listing of services, so for the purposes of this discussion only those services which were most frequently selected were listed. Those special educational support services which were selected by considerably fewerparticipants than those most frequently used (10% or more in difference in frequency of selection from that service preceeding it) were deleted from the table and this discussion. Those special educational support services that were found to be most frequently selected in Case Study A included: remedial reading (90.3%); placement assistance (67.7%); job seeking/keeping skills (58.1%); prosthetic devices (54.8%); remedial mathematics and technical tutor (48.4%); career guidance (45.2%); career exploration (35.5%); and other supportive services (e.g. typing, practical living skills, etc.) (32.2%). Within Case Study B, the special educational support services

TABLE 4.24

PATTERN OF USAGE OF SPECIAL EDUCATIONAL SUPPORT SERVICES BY RESPONDENTS FOR COMBINED CASES

Order	Case Study A			Order	Case Study B		
	Special Educational Support Services	Number	Percent		Special Educational Support Services	Number	Percent
1	Reading (Remedial)	28	90.3	1	Interpretor for the Deaf	29	93.5
2	Placement Assistance (Job Seeking/Keeping)	21	67.7	2	Tuition Waiver/Financial Aids (Direct Ed. Support Svcs.)	26	83.9
3	Job Seeking/Keeping Skills	18	58.1	3	Reading (Remedial)	24	77.4
4	Prosthetic Devices (Non-Director Ed. Spt. Svcs.)	17	54.8	4	Technical Tutor (Remedial)	23	74.2
5.5	Mathematics (Remedial)	15	48.4	5.5	Socialization Skills (Remedial)	22	71.0
	Technical Tutor (Remedial)	15	48.4		Job Seeking/Keeping Skills	22	71.0
7	Career Guidance (Voc. Guidance)	14	45.2	8	Mathematics (Remedial)	20	64.5
8	Career Exploration (VG)	11	35.5		Placement Assistance (EST)	20	64.5
9	Other Supportive Services[b]	10	32.2		Sign Language (Communcations)	20	64.5
				10	Maintenance (Non-Direct)	19	61.2
				11	Special Devices for Student[c]	18	58.1

Note.

[a] Includes only those special educational support services used significantly by respondents.

[b] Includes: typing; practical living program; physical therapy; use of work samples; training tryout; counseling for acceptance of disability; independent living skills; and other supportive counseling.

[c] Includes: Tele-typewriter for the Deaf; color-coded equipment; hearing aid; hard hat for identification in hazardous situations.

most frequently selected included: interpreter for the deaf (93.5%); tuition waiver/financial aids (83.9%); remedial reading (77.4%); technical tutor (74.2%); socialization skills and job seeking/keeping skills (71.0%); remedial mathematics, placement assistance and sign language (64.5%); maintenance (61.2%); and special devices for the student (58.1%). Visual inspection of these data indicate that many of the types of special educational support services selected for the two cases tend to relate to the primary and secondary handicaps characterized in the respective cases (e.g. prosthetic devices for the student with an amputation; interpreter for the deaf and use of sign language with the student who is congenitally deaf). Also, both of the students represented in the two cases had limited work experience which in turn created a need for knowledge of the world of work (e.g. career guidance and career exploration).

These data tend to further emphasize the variability that existed in participants in the amount and types of services which they prescribe to remediate the effects of handicapping conditions on students. Also emphasized is the variability in the usefulness of the variety of services studied within different cases representing differing student needs. Participants tended to utilize a variety of services and instructional settings in order to increase the ability of students with handicaps to participate and succeed in vocational training programs of their selection.

Validity of Diagnostic and Prescriptive Service Categories

Review of the usage of specific diagnostic information types by participants (Appendix F, Tables 12 and 13), particularly the minimal use of the Other category (2 times in Case Study A and 1 time in Case Study B), in relation to the total number of pieces of information used for each case (307 and 300 pieces respectively), indicate high validity of categories established. This factor is further evident in looking at the types of diagnostic information that was specified as Other by participants (e.g. personal interview, reading mastery test), which were repetitions of diagnostic information already provided for in the schema (e.g. Casenotes -- Individual Interview, Achievement Test). No comments were made by participants (Appendix G) with regard to difficulties in use of these categories for the cases included in the study.

Within the prescriptive segments of this study (Appendix F, Tables 20 and 21), the Other Supportive Services category was utilized more frequently (10 and 12 times respectively) but in minimal relation to the total number of special educational support services used for a particular case (206 and 354 services respectively). However, further assessment of the specific services cited in conjunction with this category indicate that perhaps more specificity and definition is needed for several of the categories used in the schema (e.g. practical living skills, independent living skills, group home placement, practical living program, all of which could be placed into one group). Although there appears to be limited difficulty in the use of these categories of prescriptive services, based upon these data and participant comments (Appendix G), perhaps further clarification of the content of these service categories and clearer descriptors are necessary before they are implemented in program operations.

Since these categorization schemes for diagnostic and prescriptive services have only been applied to a few of the potential handicapping conditions and combinations of characteristics that are possible, perhaps further investigation of their appropriateness with differing conditions is necessary prior to full adoption into program operations. However, this could be accomplished, after implementation, as an on-going refinement activity.

Case Evaluations

Each participant was asked to evaluate the cases, to determine the comparability of these simulations to actual students with which they worked on a daily basis. Four questions were asked of each participant including:

1. What would be the probability of success for this student in the vocational program listed, assuming that the IEP you have just developed was implemented? (Likert scale: 1 = No Chance to 5 = Absolute Certainty)

2. Relative to the students you normally work with, how difficult would this case be? (Likert scale: 1 = Much Less Difficult to 3 = Same to 5 = Much More Difficult)

3. How confident are you in your determination of student needs and IEP with this case? (Likert scale: 1 = No Confidence to 3 = Uncertain to 5 = Absolute Confidence)

4. Out of all the other post-secondary special needs personnel in Minnesota, approximately what percentage would have reached the same decision that you did in the determination of the individualized education program (IEP) for this case? (Specify percentage - e.g. If 45 out of 100 agree with you, insert 45%)

When asked about the probability of the student succeeding in the program selected after implementation of the individualized education program (Appendix F, Table 35), the majority (more than 50%) of the practitioners felt certain to absolutely certain (total of 58.2% for Case Study A and 58.1% for Case Study B) that the student would succeed.

Participants felt in general, that the case studies included in the study were of the same difficulty to much more difficult than their typical student caseloads (total of Same to Much More Difficult equal to 80.6% for Case Study A and 90.3% for Case Study B) (Appendix F, Table 36). Only a minimal number of the participants felt that the cases were less difficult than those typically worked with (19.4% for Case Study A and 9.7% for Case Study B).

Participants had confidence in their decisions with regard to development of the IEP and in determining individual student needs (Appendix F, Table 37) in that the majority felt confident to absolutely confident in their decisions (87.1% for Case Study A and 90.3% for

Case Study B).

When asked about how many of their vocational special needs practitioner peers would reach similar conclusions, nearly all participants felt that at least half of their peers would reach agreement with the resulting IEP that they developed for each case study (Appendix F, Table 34) (71.0% for Case Study A and 77.4% for Case Study B).

Participant Comments

Within the last section of the study questionnaire (Appendix D, Part IV, Item g.), each study participant was encouraged to make any additional comments which they had concerning the project, special needs services, licensure requirements and/or in-service/continuing education, that they felt to be of importance in improving the status of post-secondary vocational education for students with handicaps. These comments were then recorded verbatin (Appendix G) as secondary information for the readers and outcome implementers. Although these comments will not be discussed in depth, several important concerns stressed by study participants are felt to merit additional mention at this point.

Comments presented appeared to focus on several major areas including: scope and availability of services; in-service education programs; and inter-/intra-agency relationships.

With regard to the scope and availability of services, participants appeared to have need for a broad spectrum of diagnostic and prescriptive services to deal with handicapped students. However, concern was evident in the potential overuse of services for these students, to a point of creating additional dependence on the system by the consumer of the services.

Pertaining to in-service education, participants stated interest in programs which aided in their specific skill development for providing certain services (e.g. teaching of reading and listening skills, vocational diagnostic interviewing, etc.). Also, provision of training sessions at annual workshop and conferences that are focused on service applications (e.g. the use of specific test results and medical information, development of individualized education programs, creation of interagency agreements, etc.) were felt to be of greater importance than those aimed at generating a philosophy of service provision (e.g. courses in philosophy of vocational or secondary education).

Finally, with regard to inter-/intra-agency communications and coordination of services, several participants stated concern with the lack of willingness of vocational special needs practitioners to accept outside expertise in meeting the comprehensive needs of students. This was felt to be a critical concern, particulary when the vocational special needs practitioner has had limited experience or training with a specific handicapping condition or in the case when specific services are required that are beyond the scope of the special needs program operations. Further, need for the development of a network between Area Vocational-Technical Institutes to aid practitioners in gathering information that would improve or serve in providing direct student services within the special needs area and the use of specialists (e.g. mobility trainer's from the State Services for the Blind, interpreters for the deaf through the Division of Vocational Rehabilitation, etc.) to aid in the development and implementation of appropriate IEP's were felt to be of high priority to participants.

CHAPTER V

SUMMARY AND CONCLUSIONS

Data gathered and analyzed during this study have provided answers to most of the original reseach questions posed. This chapter is organized to summarize these results, clarify the limitations placed on the study, state the implications for further research, and draw conclusions on which to base future programmatic developments in post-secondary vocational special needs education. These comments are oriented toward present and future practices of diagnostic-prescriptive education for handicapped students in vocational education.

SUMMARY OF RESULTS

The following summary of study results follows a logical sequence related to the primary and secondary objectives of the project. It is an attempt to form ties between each of the dimensions of concern: practitioner characteristics; perceived characteristics of employment settings; diagnostic information used; and prescription of program placements, modifications and supportive services for students with specific handicaps.

Practitioner Characteristics -- Participants in this study were asked a number of questions relating to their respective academic preparations, work experiences, job characteristics and perceived in-service training needs, to clarify the status of personnel preparation presently existent within the post-secondary vocational special needs programs in

Minnesota Area Vocational-Technical Institutes (AVTIs). From data collected and analyzed for this study, personnel were found to be characterized as follows:

- Personnel who are providing diagnostic and prescriptive services to handicapped students are assigned to job titles and roles of: Special Needs Supervisor; Support Service Manager; Vocational Instructor-Evaluator; Vocational Counselor; Remedial Related Instructor; Technical Tutor; and Evaluator Aide
- Personnel functioning in job roles of Vocational Instructor-Evaluator and Support Service Managers tend to spend a considerable amount of their assigned work time (84.2% spending more than 30% of their assignment) on diagnostic and prescriptive duties
- Personnel functioning in job roles of Special Needs Supervisor, Evaluator Aide, Remedial Related Instructor, Technical Tutor and Vocational Counselor tend to spend a lesser amount of their assigned work time (41.7% spending more than 30% of their work assignment) on diagnostic and prescriptive duties
- Approximately half (45.2%) of the participants ranged in age from 25 years to 34 years with the second largest grouping (32.3%) falling within the range of 35 years to 44 years. A smaller number (19.4%) were over 45 years and even fewer (3.2%) were under 25 years of age
- Most of the participants were male (71.0%) as opposed to female (29.0%)
- Teaching experience ranged from 1 to over 14 years with the majority (58.1%) having taught less than 10 years. About one-quarter (25.8%) of the participants had less than 5 years of teaching experience
- Most of the participants (71.0%) possess a Master's degree, one of which was completing work on a Specialist in Education degree. A smaller portion of the group (25.8%) possessed a Baccalaureate degree and only one (3.2%) did not possess any degree whatsoever

- Fields in which participants possessed their highest level of formal academic preparation included: vocational rehabilitation (30.0%); special education (23.3%); other education (16.6%); vocational education, industrial arts and home economics education (13.4%); counseling (13.3%); and technical fields (3.3%)

- Possessed formal academic training in the following handicapping conditions: mental retardation (80.6%): chemical dependency (71.0%); emotional disturbance (67.7%); specific learning disabilities (61.3%); deafness/ hearing impairments (35.5%); orthopedic impairments and other health impairments (32.3%); multiple handicaps (25.8%); speech impairments and blindness/visual impairments (22.6%); and other conditions (e.g. spinal cord injury, cardiovascular disorders)(9.7%)

- Possessed work experiences with the following handicapping conditions: mental retardation, specific learning disabilities and emotional disturbance (87.1%); chemical dependency (80.6%); orthopedic impairments (61.3%); deafness/hearing impairment (58.1%); other health impairment (54.8%); speech impairment (48.4%); blindness/ visual impairment (42.0%); multiple handicaps (29.0%); and other conditions (e.g. spinal cord injury, cardiovascular disorders)(9.7%)

- Possessed formal academic training in the use or administration of the following diagnostic assessment techniques: achievement testing (93.5%); interest inventories (83.9%); aptitude tests, course grade reports, attendance records and individual interviews (80.6%); performance reports, vocational evaluation report and staff conference notes (77.4%); on-the-job training performance report (74.2%); intelligence tests, anecdotal records/teacher observations, and work history (71.0%); perceptual-motor tests (67.7%); personality profiles and behavior rating scales (64.5%); social worker report (48.4%); general medical report (45.2%); economic status report (41.9%); psychiatric report (32.3%); speech and auditory report (22.6%); orthopedic report and visual report (19.4%); neurological report (16.1%); cardiovascular report and gastrointestinal report (12.9%); and respiratory report and urological report (9.7%)

- Possessed formal academic preparation in the provision or use of the following program placement, modification and special educational support service types: program placement types - regular class and special class placement (71.0%); modified program and prevocational program placement (61.3%); program modifications - curriculum modification (71.0%); supportive audio-visual materials (64.5%); scheduling/length of program (51.6%); equipment modification (48.4%); facility modification (41.9%); special educational support services - career guidance (77.4%); career exploration (74.2%); testing-assessment, referral to another agency and job seeking/job keeping skills (71.0%); job placement (61.3%); socialization skills (54.8%); personal-family counseling (51.6%); remedial reading (48.4%); remedial mathematics (45.2%); technical tutoring and sign language (41.9%); tool purchase (38.7%); writing skills, tuition waiver/financial aids and payments for job training sites (35.5%); language instruction and maintenance (29.0%); bi-lingual instruction, public conveyance and interpretor for the deaf (25.8%); mobility training (22.6%); van/adaptive vehicle and prosthetic devices (19.4%); special devices for students, reader for the blind and adaptive home equipment (16.1%); medical-dental assistance (12.9%); interpretor/bi-lingual aide (9.7%); aide/companion (6.5%); and practical living skills (3.2%)

- Perceived a need for in-service training in diagnostic and prescriptive techniques at only a minimal level in each and every category (less than half perceiving any need for training in any category). Moderate needs for training were indicated for: intelligence testing, use of general medical reports, curriculum modifications, supportive audio-visual materials, bi-lingual instruction and so on. Minimal needs (less than 10.0% perceiving need for training) were stated for others including: course grade reports, attendance reports, work history, tool purchase, maintenance, public conveyance, and so on

Commonality among practitioners appeared to exist only in the general aspects of diagnostic and prescriptive services which they provide in Minnesota Area Vocational-Technical Institutes (AVTIs), with much diversity existing in the level of preparation, experience, assigned job duties and perceived needs for additional training.

Perceived Employment Setting Characteristics -- Participants were also asked several questions regarding their institution of employment and the surrounding community. Although these employing institutions are part of the same post-secondary vocational education system (Minnesota State Plan for Vocational-Technical Education, 1977), they were found to differ on the several dimensions which were looked at by the study. Perceptions of participants would characterize these institutions as follows:

- Geographic source of student enrollees in the AVTIs were perceived as being approximately equal between metropolitan/suburban (50.6%) and rural (48.4%) settings. This is a further indication of the representation of personnel and AVTIs in the study, in that approximately half of the AVTIs and participants were from metropolitan/suburban settings

- Referral sources for students with handicaps were perceived as being from: high schools and the Division of Vocational Rehabilitation (54.8%); Comprehensive Employment and Training Act programs (CETA)(45.2%); corrections (29.0%); welfare (25.8%); program instructor and drug rehabilitation programs (22.6%); insurance companies and Manpower Services (19.4%); self/family (16.3%); Veterans Administration (16.1%); other AVTIs, Social Security and Services for the Blind (6.5%); and developmental disabilities centers, AVTI counselors and schools for the retarded (3.2%)

- Personnel were found to be working with the following types of handicaps on a regular basis: learning disabilities (77.4%); mental retardation (58.1%); emotional disturbance and chemical dependency (54.8%); deafness/hearing impairment (38.7%); orthopedic impairment (32.3%); multiple handicaps (19.4%); other health impairments (e.g. asthma, cerebral palsy)(12.9%); other handicaps (e.g. spinal cord injury)(6.5%); speech impairments (3.2%); and blindness/visual impairments (0.0%)

- Personnel had special needs caseloads (handicapped and disadvantaged) which ranged from 8 to 150 individuals on an on-going basis and 20 to 425 over the course of a year. On the average, these practitioners each worked with 36 students on a regular basis and 174 over a one year period. Of this total caseload, the number of handicapped students worked with ranged from 0 to 30 students on a regular basis and 0 to 180 over the course of a year. On the average, these practitioners worked with 12 handicapped students on a regular basis and 63 over a one year period

- Size of the AVTI in which participants worked varied from 249 or fewer students to well over 2,000 or more. Approximately half of the participants worked in AVTIs having less than 1,000 students enrolled in post-secondary vocational education programs. These results tie heavily to the relative sources of student enrollments and the AVTI in which the participants were employed. AVTIs with larger enrollments (e.g. over 1,000 students) tend to be in the metropolitan and suburban areas (e.g. White Bear Lake, Minneapolis, St. Paul, Anoka, Rochester, etc.)

- Diagnostic assessment services were perceived to be available within the employing AVTI and surrounding community at the following levels: achievement tests (90.3%); vocational evaluation reports (87.1%); intelligence and aptitude tests (83.9%); course grade reports (80.6%); interest inventories, performance reports and attendance records (77.4%); individual interviews (74.2%); general medical reports, work history and staff conference notes (67.6%); psychiatric report (64.5%); personality profile, perceptual-motor tests and anecdotal records/teacher observations (61.3%); speech and auditory report and visual report (58.1%); social worker report (54.8%); neurological report and orthopedic report (48.4%); on-the-job training performance report (41.9%); cardiovascular report and economic status report (38.7%); gastrointestinal report and respiratory report (35.5%); urological report and behavior rating scales (29.0%) and other diagnostic services (e.g. individual staff/personnel notes)(3.2%)

- Within prescriptive program placement types, participants perceived availability as follows: modified programs and pre-vocational programs (77.4%); and special programs (61.3%)

- Perceived availability of program modification types by participants were: supportive audio-visual materials (77.4%); curriculum modification (67.7%); scheduling/length of program (64.5%); facility modification (51.6%); equipment modification (38.7%)

- Special educational support services were perceived as being available by participants as follows: remedial mathematics and reading (93.5%); job seeking/job keeping skills (87.1%); technical tutoring (83.9%); career guidance, career exploration and testing-assessment (80.6%); referral to other agency (74.2%); job placement (71.0%); writing skills and language instruction (67.7%); interpretor for the deaf and tool purchase (61.3%); bi-lingual instruction, personal/family counseling and sign language (58.1%); tuition waiver/financial aides (48.4%); socialization skills (45.7%); maintenance (45.2%); speech/language therapy and prosthetic devices (35.5%); public conveyance (29.0%); van/adaptive vehicle, reader for the blind and medical/dental assistance (25.8%); mobility training and aide/companion (22.6%); special devices for the student, interpretor/bi-lingual aide and adaptive home equipment (19.4%)

Commonality between participants perceptions of their employing institutions appeared to be at minimal levels of specific service availability at best, although the facilities were part of the same system of post-secondary vocational education within the State of Minnesota. Additionally, even if all services were available in each of these settings the perceptions of practitioners prescribing services dictates their actual availability for implementation in individual student service plans (IEPs).

Diagnostic Processes -- Through the use of simulated student case studies, a comon situational base was provided upon which each participant's process(es) of diagnosis could be assessed. Variations within each practitioner and among the group of participants in the study were evaluated for each of the two simulated case studies used. Beyond presenting data for individuals, analysis was undertaken for the categories of diagnostic information used so that both practitioner and programmatic variability could be adequately addressed.

Participants were found to vary in the following ways:

- Number of pieces of diagnostic information they required to develop an initial individualized education program (IEP) ranged from 3 to 18 in Case Study A and 3 to 19 in Case Study B
- Order in which they indicated they would utilized specific types of diagnostic information

However, individual participants were found to be relatively stable in the amount of diagnostic information which they would use from case to case. This indicates that individuals tend to use the same amount of information, no matter what the characteristics of the case appear to be.

Within specific diagnostic information types (e.g. general medical examination, vocational evaluation report, achievement test results) analyses indicated that variation occurs in the:

- Frequency that specific diagnostic information is utilized for individual students having handicaps. Those diagnostic information types most frequently used include: vocational evaluation report; achievement test; general medical report; medical specialty report (corresponding to primary and secondary handicapping conditions present); individual interview; course grades; social worker report; and performance report

Relative stability was found to exist between case studies in the frequency at which specific diagnostic information types were used. However, differences in the frequency of use of certain types of diagnostic information appeared to relate to the primary and secondary handicapping conditions associated with each case study (e.g. use of speech and auditory report with hearing impaired student; use of orthopedic report with student having an amputation).

It was found that the majority of individual participants required fewer than 9 pieces of diagnostic information upon which to base an initial individualized education program (IEP) for a handicapped student. Although no specific patterns of diagnostic information use could be identified by the order of selection by these participants, the frequency at which diagnostic information types were selected irrespective of order appear to provide programmatic implications for service provision. These implications are that:

- If certain types of diagnostic information (vocational evaluation report, achievement test, general medical report, medical specialty report(s), individual interviews, course grades, social worker report and performance report) were available to special needs practitioners, they would be utilized with most students even if they possessed differing handicapping conditions
- Specific types of diagnostic information related to the primary and secondary handicapping conditions of the particular student (e.g. speech and auditory report for a hearing impaired student, economic status report for an economically deficient student, etc.) are useful to the vocational special needs practitioner particularly in the early steps of the diagnosis

Further variations in the amounts of diagnostic information used by participants were found to exist for groups which differ in: job titles and responsibilities; level of formal academic preparation achieved; and field in which formal academic preparation was obtained. More efficient use (fewer reports requested) of diagnostic information was found to take place when:

- Practitioners were functioning in roles which required more direct student contact for service provision and in roles that required a considerable portion of their time to be spent in diagnostic and prescriptive duties (e.g. Vocational Instructor-Evaluator and Support Service Manager rather than Special Needs Supervisor or others)
- Practitioner possessed a higher level (Master's degree rather than a Baccalaureate degree) of formal academic preparation
- Highest level of formal academic preparation was in fields which have traditionally been focused on individualized service planning and working with handicapped individuals (special education and vocational rehabilitation rather than vocational education, industrial arts and home economics education, counseling, psychology, social studies, chemistry, mathematics or elementary education)

No significant differences were found to exist in the amount of diagnostic information used by practitioner groups on the average, when compared on the amount of time spent in diagnostic-prescriptive duties (when disregarding the relationship with job role) or the number of years of teaching experience which they possessed.

Educational Prescriptions -- Each practitioner utilized the diagnostic information to develop an initial individualized education program for each of the two simulated student case studies. These prescriptions included a selection of an appropriate program placement, identification of modifications and selection of special educational support services to meet the diagnosed needs of the student. Variations within each practitioner and among the group of participants in the study were evaluated for each of the two simulated case studies. Beyond the presentation of data based upon individual study participants response, analysis was also undertaken for the categories of program placement, modification and special educational support services used. In this manner, both practitioner and programmatic variability could be adequately addressed.

Based upon these data participants were found to behave in the following ways:

- Participants tended to remain unchanged as a group in their determination of appropriate program placement for the two simulated student case studies. At lease half of the participants selected a modified program as most appropriate in each case, followed by regular program and pre-vocational program as almost equal preferences. The special program placement was not selected by any participant for either case (r_{12} = +0.98)
- As individuals, 16 of 31 participants changed their selection of program placement type from case to case with 15 remaining unchanged
- Participants differed in the number of program modifications which they selected from case to case although no statistically significant differences could be found between individual participants within each of the cases (r_{12} = + 0.34)
- Frequency of selection of program modifications differed within individual case studies
- The mean number of times that program modifications were selected increased as the case study became more complex in terms of the number of handicapping conditions that were present (mean frequency of selection in Case A = 4.8 where 2 handicapping conditions were present and 9.4 in Case B where 4 handicapping conditions were present)

- Frequency of selection of program modifications differed from case to case with negative correlation being found between categories (r_{12} = -0.06). Facility modification was used infrequently while scheduling/length of program, curriculum modification, equipment modification and supportive audio-visual materials being utilized with each case
- Scheduling/length of program, curriculum modification, equipment modication and supportive audio-visual materials were utilized differentially between the two cases (differences in category use ranging from 6 to 14 responses) indicating a tendency to vary due to student characteristics
- The number of special educational support services selected for each case study ranged from 1 to 15 for Case Study A and from 2 to 24 for Case Study B. This showed that participants differed significantly in the determination of the amount of support services that were required for an individual student
- Between the case studies, the number of special educational support services used by individual participants were found to differ significantly although a moderate correlation (r_{12} = +0.58) in the number used for the two cases was found to exist

These data revealed that participants did not vary significantly in a number of areas including: their use of specific program placement types in less involved case studies (e.g. 2 or less handicaps being present); the number of program modifications used within each case study (range from 0 to 3 and 0 to 4 for Case A and B respectively); the frequency in which they used specific program placement types across the two case studies as a group. In addition, the participants did not feel that the Special Class placement option was a viable alternative for provision of vocational education for the students exhibiting the characteristics included for this study. The Special Class placement option may be a viable alternative for more severely involved students with handicaps, however.

With variation being shown within and between individual participants in the determination of initial individualized education programs (IEPs) for the respective case studies, one must ask if there is potentially one alternative possible or a number of equally appropriate service plans possible for any one student. At present, no evaluation criteria exists for assessing the quality of the prescriptive service programs that are established for handicapped students (IEPs). The establishment of these necessary criteria is possible only as based upon collective opinion at this time, longitudinal study of the diagnostic-prescriptive procedures, individualized service plans and ultimate outcomes would provide a more appropriate data base for establishing these criteria. Since so much variability appears to exist in diagnostic-prescriptive practices of practitioners, criteria is needed to aid in evaluating the quality of individualized service plans for handicapped students to enhance their participation and ultimate success in vocational education programs and later employment.

Within the specific types of program placement, modification and special educational support service used by participants for the two case studies, no signficant differences were found to exist in the number of times that each was select from case to case. However, further inspection of these data indicate that:

- Student placement in modified vocational programs occurred most often while special class placements were not used at all with the case studies included in this study

- Regular and pre-vocational program placements were used less frequently than modified programs on an almost equal basis

- Modifications in the schedule and length of a vocational program, curriculum, equipment and use of supportive audio-visual materials were utilized differentially with these case studies, based upon the handicapping conditions exhibited by the student

- Facility modifications were used infrequently for the handicapping conditions that were exhibited through the case studies presented

- Certain special educational support services tended to be used consistently within both cases, even though they did not relate directly to the primary and secondary handicaps presented, including: job seeking/job keeping skills and placement assistance

- Other special educational support services tended to be utilized dependent upon the primary and secondary handicaps that were presented in the case studies (e.g. prosthetic devices for the student with an orthopedic impairment; remedial reading in the case of specific learning disability in reading; financial aids and tuition waiver in the case economic disadvantagement)

These data emphasize that the participants in this study:

- Prefer to work with handicapped students in least restrictive environments (modified, regular and pre-vocational programs) rather than isolated settings (special classes)

- Use program modifications frequently, but then only as they relate to specific handicaps that are exhibited by the student

- Use special educational support services frequently, particularly as they relate to primary and secondary handicaps exhibited by the student, or underlying needs that are felt for most students (e.g. job seeking skills or placement assistance)

Diagnostic and Prescriptive Service Categories -- A secondary objective of this study was to determine valid categories of diagnostic and prescriptive services that could be utilized in programmatic operations for identifying relevant needs of students and appropriate remediation techniques for resolving those needs. With regard to the categories applied to handicapping characteristics presented in the case studies, the following results were obtained:

- Diagnostic information categories were used extensively by the participants with no stated difficulty in differentiating between them
- The Other category within the diagnostic information listing was used minimall and then only for additional information that could have been placed under one of the other categories listed
- Prescriptive service categories were utilized extensively by the participants with no stated difficulty in use or differentiation
- The Other category within the prescriptive service listing was used minimally in comparison with other special educational support services
- Services stated in conjunction with the Other category could, at times, be placed under one of the categories previously listed
- Several services stated in conjunction with the Other category may require further expansion or redefinition of services included in the listing
- The diagnostic and prescriptive service categories used for this study appear to be satisfactory, at least with students presenting handicaps similar to those included in the simulated case studies. Further clarification and definition may be necessary prior to full implementation of these categories into standard program operations

Limitations of the Study

The outcomes of this study must be viewed within the parameters and under the limitations in which it took place. The limitations influencing the generalizability of the study results are:

- Results are limited to the post-secondary level of vocational special needs education as practiced in Minnesota AVTIs during the 1978-79 academic year
- Voluntary participation of practitioners took place, limiting the generalizability to those practitioners who possess similar academi training and work experiences, and who work in similar employment settings as the sample
- The study only dealt with the characteristics, needs, goals and services required of vocational special needs students having handicaps
- The handicapping conditions presented in the simulated case studies were limited to (a) specific learning disability and orthopedic impairment and (b) specific learning disability, economic disadvantagement, social problems and congenital deafness
- By using simulated student case studies, wherein all types of diagnostic information and prescriptive services that were identified were available for use by individual participants, variability brought about by individual practitioners could be assessed in the best of programmatic situations
- Due to limited numbers of participants in the study, the effects of variations in academic preparation, work experiences, in-service training needs and personal philosophies of service to the handicapped were not evaluated in relation to the diagnostic and prescriptive processes used by practitioners for each case study
- Presently no guidelines exist that would be useful in evaluating the quality of diagnostic and prescriptive processes practiced by practitioners nor the individualized education program (IEP) that results. Little is known about the potential for one or multiple alternatives to best practice in diagnosis and prescription at this time

Implications for Further Research

Considerable effort has been spend in the development of diagnostic tools and prescriptive services to remediate the needs of students with handicaps within educational and related human service programs. These undertakings have been brought about or initiated legislative actions, conceptual developments and implemented program operations in special education, vocational special needs education, and vocational rehabilitation primarily. Although numerous alternatives are present, differing by the terminology, categorization scheme or method of implementation used, little effort has been shown in the evaluation of the efficacy of these approaches. Neither has an intensive effort been exerted to assess the variability which exists through the implementation of these approaches, particularly that which is brought about by individual practitioners, group interactions, local availability of services or with divergent handicapping conditions presented by individual students.

With increasing call being placed for the provision of individualized education programs for all handicapped students, regardless of their age; strongly felt needs exist for program and practitioner development in diagnostic-prescriptive teaching processes that can be of use in a variety of educational settings. Standardized terminology, programmatic procedures, appropriate training and experiences for practitioners and the availability of necessary services all impact on the development of an appropriate IEP for the handicapped student in post-secondary vocational education. Prior to the implementation of new practices or modifications to present ones, assessment of present practice is required to fully acknowledge the positive and negative aspects impinging upon the provision of appropriate vocational education for students presently enrolled in Minnesota AVTIs. For these reasons, the following research needs are felt to be warranted as a basis for future development of vocational special needs education:

- There is a need to determine if the diagnostic and prescriptive services categorization schemes used with this study are valid when applied to other handicapping conditions not covered by this study
- There is a need for development of standardized procedures for implementing these categorization schemes in program operations
- There is a need to assess the effects of variations in the academic preparation and work experience backgrounds of practitioners on the diagnostic and prescriptive processes that are used with students having handicaps
- There is a need to assess the actual availability of diagnostic and prescriptive services in Minnesota AVTIs and their effects upon the development of an appropriate individualized education program for students with handicaps
- There is a need to identify the necessary content that is required by practitioners for each category of diagnostic information that is utilized in development of an appropriate IEP
- There is a need to identify the content and manners of making available specific prescriptive services that are required to remediate handicaps that are exhibited by vocational special needs students
- Prior to the implementation of group procedures of diagnosis and prescription, there is a need to assess the effects of group interactions on the development of an appropriate IEP for students with handicaps
- There is also a need to identify the pertinent requirements of vocational education programs and subsequent employment, in terms that parallel those

that are used to describe the functional characteristics of individual students, to aid in the development of an appropriate IEP

- There is a strong need to develop methods of evaluating the content of IEPs and the diagnostic-prescriptive processes used to create them

- There is a need to upgrade vocational special needs education as a field and to ensure that handicapped students have access to appropriate educational opportunities

Conclusions

From this study and review of related literature the following conclusions are drawn:

- There may be a number of alternative best practices for diagnosis and prescription rather than just one sole criteria for evaluation of the efficacy of the individualized education program (IEP) which results. While individual practitioners appear to vary in the amount, type and order in which they use diagnostic information, consistency in the use of diagnostic information types across practitioners is present. This indicates that certain information needs exist for every student, with information about primary and secondary handicapping conditions being required for identifying individual student needs. Likewise, a degree of consistency exists in the utilization of program placements, modifications and special educational support services for most students, with additional service needs becoming evident to remediate conditions brought about by handicapping conditions that are present

- In the development of new vocational special needs programs and upgrading of those presently operating, a core amount of diagnostic and prescriptive services are necessary in each post-secondary vocational education facility (AVTI). Where these services are not available, they need to be developed in the facility or the surrounding community through cooperation with other agencies and groups. Where these services are available and not used by practitioners due to their lack of knowledge, in-service training becomes mandatory

- In selecting personnel to fill vocational special needs practitioner roles, the individual applicants academic preparation and work experiences with different handicapping conditions, diagnostic assessment tools and prescriptive services are necessary to determine their appropriateness for licensure and need for continuing in-service education
- Standardized terminology and operational procedures may serve to improve the level of communication and efficiency in service provision between and within practitioners, programs and agencies

Although this study has been somewhat limited in scope and generalizability, it may provide a foundation upon which further research and development can be undertaken to improve the provision of vocational education to individuals who are handicapped. At present, no guidelines have been implemented which would aid practitioners in the identification and remediation of the comprehensive needs of handicapped students, related to vocational training and subsequent employment, within various settings and levels of vocational education. Likewise, core services vital to handicapped students, both in enhancing their ability to participate and succeed in vocational training, need to be identified and implemented as a standard part of the vocational special needs program in each post-secondary institution. A key to providing appropriate and high quality educational opportunity to the handicapped is the availability of services and well trained practitioners, wherever they might be needed. Although not specifically addressed by this study, several other conditions for provision of adequate diagnostic-prescriptive education in vocational special needs programs must be considered. Included in these major concerns are: (1) utilization of appropriate assessment technology to evaluate the experiences, background and needs of the individual student; (2) competent administration of diagnostic and prescriptive services; (3) involvement of the individual student, their parents or significant others in the decision-making process associated with individualized educational programming; (4) improvement of the efficacy of special educational supportive services to a point where it can be shown that their provision enhances significant improvement in the functional capacities of the individual student; (5) development of procedures which do not place stigmatizing labels on handicapped students, such as special class placements or use of diagnostic categories for identification which may have profound, long-term effects; and (6) determination of a sound philosophical basis for the provision of services to the handicapped and determination of realistic parameters (e.g. funding, services that can be provided effectively by the agency, etc.) within which programs of service can be developed and implemented.

APPENDIX A

LETTER TO POTENTIAL PARTICIPANTS

UNIVERSITY OF MINNESOTA
TWIN CITIES

College of Education

Department of Vocational and Technical Education
Peik Hall
159 Pillsbury Drive S.E.
Minneapolis, Minnesota 55455

February 27, 1979

Dear Vocational Special Needs Professional:

I am writing to request your assistance in a matter concerning vocational special needs programs in Minnesota Area Vocational-Technical Institutes.

A study which investigates the diagnosis of the educational needs and prescription of services for handicapped students, is being supported by the Minnesota Department of Education, Division of Vocational-Technical Education. This study is being conducted as a doctoral research project through the University of Minnesota, Department of Vocational and Technical Education.

You are being asked to participate in the study, through involvement in data collection activities held in conjunction with a professional association meeting of the National Association of Vocational Education Special Needs Personnel (NAVESNP) and the Minnesota Association of Vocational Education Special Needs Personnel. This conference is presently planned for Friday and Saturday, March 30 and 31, 1979. It will be held at the Sheraton-Northwest Motor Lodge in Brooklyn Park, a northern suburb of Minneapolis. You should have received or will be receiving shortly, information about this conference. The study itself is specifically directed toward post-secondary level special needs personnel from Minnesota and will be held on Saturday, March 31st from 1:00 - 5:00 P.M. so as to minimize conflict with work and travel. Participants in this study will also be given stipens to aid in defraying costs for travel and lodging. Stipends will amount to approximately $20.00 for each participant.

Whether you are able to participate in this study or not, would you please take a few minutes to complete the enclosed one-page questionnaire. Please indicate if you will be participating in the study on March 31 and also, indicate other individuals with whom you work that are employed as Special Needs Supervisors, Support Services Managers or Vocational

Instructor-Evaluators (post-secondary only). Your help in developing a complete listing of personnel in these capacities will be of considerable value to completion of this study. A stamped return envelope has been included with these materials. Please return this questionnaire by March 14.

I would personally like to thank you in advance for your assistance and immediate response. Should you have additional questions regarding the study or conference, please feel free to call or write me at your convenience. This will be the only communication you will receive regarding the study prior to the collection of data, at 1:00 P.M., Saturday, March 31. If you plan on participating, the exact location of the activities will be posted near the front desk of the Sheraton Nortwest Motor Lodge, in Brooklyn Park. I hope that you will be able to be there.

Sincerely,

Gerald Schneck
Doctoral Candidate

Name: ______________________________

AVTI: ______________________________

A. I will/will not (circle one) be able to participate in the diagnostic-prescriptive study for post-secondary special needs on Saturday, March 31, at the Sheraton Northwest Motor Inn, Brooklyn Park, Minnesota.

B. Please list the name of each staff member presently employed in a full-time post-secondary position within your institution who have diagnostic and prescriptive duties:

Name of Staff Member	Job Title/Licensure
	Special Needs Supervisor
	Support Service Manager
	Vocational Instructor - Evaluator
	Other (List Title)

APPENDIX B

CASE STUDY A

CASE STUDY A

District #6 Area Vocational-Technical Institute

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Statement of Institutional Philosophy and Policy

It is the philosophy of this educational institution, to insure the maximum opportunity for individuals to participate and succeed in the vocational education program of their choice and later employment. To insure that an atmosphere conducive to these aims does exist, the policy of this institution is to provide and/or secure the services necessary to enable the individual to participate and succeed in the vocational program of their choice.

District # 6 Area Vocational-Technical Institute

REFERRAL FOR SERVICES

Student: Smith, Suzanne J. Date: 1-10-79

Referring Counselor: A. F. Langley

To: Special Needs Department

Reason for Referral: During the initial interview with this applicant, several possible problems were encountered which may require that this student receive special services to fully participate and succeed in the program. Discussions with the student and observations made, indicate that several physical, mental and/or emotional difficulties may be present.

Comments: I have sent along copies of a variety of reports and information which were received from the students Rehabilitation Counselor, high school, and the like, which may help you in determining what services will be initially required for this student. Please identify which services are appropriate so that we may plan for their enrollment.

CASE STUDY A

APPLICATION FOR ENROLLMENT IN THE VOCATIONAL—TECHNICAL INSTITUTE

District 6 AREA
Name of School

(FOR OFFICEUSE ONLY
Date Received 239
Date Accepted
Tuition Rate: No. Days
Student # Agency Funded

DIRECTIONS: Complete all of this application. Answer every item which applies to you. Be sure to mail or bring the Transcript Release Permission portion to the last high school or post-secondary school you attended or are attending (other than the AVTI to which you are applying.)

(1) Date of application 1 - 10 - 79

(2) Date student is available to start Immediately

(3) Program for which I would like to enroll: Practical Nursing
First choice Alternate choice

(4) NAME Smith Suzanne Jane
Last First Middle

(5) Address 215 East Main Street Montgomery
Street City
Faribault Minnesota 55631
County State Zip Code

Note: If address changes during application process, please notify the school.

(6) Name used on high school records, if different from # 4
Last First Middle

(7) Name and address of last high school attended Montgomery H.S. School District # 57

(8a) Birth date 6 - 15 - 60 (8b) Age 18 (8c) Social Security # 471-52-0000

(9) Home phone No. (612) 373-1350 Work phone No. (-) - Phone to leave message (-) -

(10) Name of parent, guardian or spouse Betty A. Smith Telephone number (612) 373-1350

(11) Address 215 East Main Street, Montgomery, Minnesota 55631

(12) Date or expected date of high school graduation (month) June (year) 1978

(13) If not graduated, last date attended: (month) (year)

(13a) Circle highest grade you completed or are currently completing: 7, 8, 9, 10, 11, [✓ 12] 13, 14, over 14.

(14) If not graduated, do you hold a GED certificate? Yes__ No__ If yes, year completed

high school vocational education course? Yes ________ No __X__ Don't know ________

If yes: Name of center ________________

Name of course ________________

(16) Post high school training or education (including military schools):

Name	Dates	Type of program	Hours or credits, m
240			
None			

(17) Work experience: Include military experience (list most recent experience first)

Employing firm or company	Address	Dates employed	Type of work or job t
None			

(Additional employment or related experiences may be listed below if desired.)

(18) Are you a Minnesota Resident? Yes __X__ No ________

(19) How do you plan to finance any expenses involved in this training?

(check one or more):

- ________ Family
- ________ Savings
- ________ Work Study
- ________ Scholarship
- ________ Other financial aids
- ________ Part time work
- ________ Other (specify)
- __X__ Vocational Rehabilitation (DVR)
- ________ Comp. Employment Trng Act (CETA)
- ________ Bureau of Corrections
- ________ Bureau of Indian Affairs
- ________ Veterans Benefits
- ________ Vets Rehab
- ________ Social Security
- ________ Work Incentive (WIN)
- ________ Welfare (list County a ate
- ________ Vets War Orphans
- ________ Chippewa Tribe

Name of agency contact person Jane Donaldson

(20) What are your career plans for the future? "Work as a nurse or in a doctor's office."

How do you expect training will help you? "Training for skills needed by a practical nurse or as a doctor's assistant,"

APPLICANT'S SIGNATURE Suzanne J. Smith

How did you first learn of this AVTI? Friend who goes to school here.

Printed by Dakota County AVTI Graphic Communications Students

CASE STUDY A

Course Title: NURSING, PRACTICAL

Name of School: District #6 Area Vocational-Technical Institute

Admission Dates: January, April, July and October - Application should be made 60 days prior to desired starting date.

Nature of Work: The Licensed Practical Nurse gives the skilled nursing care to convalescents and the chronically ill. She assists the registered nurse in a team relationship under the direction of a registered nurse or physician.

Job Opportunities: Excellent opportunities in hospitals, nursing homes, public health agencies and in private practice.

Course Description: Theory and practical experience in care of medical and surgical patients, mothers and newborn infants, ill children, the aging and the mentally ill. Clinical experience is gained in local hospitals. Affiliation with metropolitan (Minneapolis-St. Paul area) hospitals provides the experience in the nursing of children and affiliation with the State hospital system gives training in nursing the mentally ill. Training qualifies the graduate for licensure as Practical Nurse.

Length of Course: 12 months

Helpful High School Courses:

Prerequisites:

High school graduates aged 17 to 21
(individuals 21 to 40 are accepted
on individual basis)

Personal interview

Personal Qualities: Good physical and emotional health

Personal Equipment Needed:

Uniforms

Incidental supplies

Expenses:

Course fee - $35
Reference books, uniforms, supplies and graduation expense - $100
Tuition - Check with the Director or Counselor

CASE STUDY A

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CARDIO-VASCULAR REPORT

RE: Smith, Suzanne J.

FAMILY HISTORY: No family history of diabetes mellitus, heart disease (primary arterioscloertic heart disease).

PAST HISTORY: No history of hypertension, diabetes or heart disease. No history of chest pain, shortness of breath orthopnea or intermittent claudication (pain in legs brought about by walking), no history of edema.

PHYSICAL EXAMINATION: Vital signs - B.P. 120/80, pulse 60-90/regular
Chest: Clear, no rales or Bronchi

CV: All heart sounds present (S_1, S_2 (with or without functional splitting) no extra sounds (clicks, snaps, or murmurs).

No cardiac enlargement (PMI - point of max intensity) should be in 5th interiostal space and intersect an impaginary line perpendicular to clavicle at its midpoint.

No distention of neck veins.

Ext.: No edema, cyanosis, color good, warmth, presence of hair, good nails.

Eyes: Eye grounds WNL. No evidence of papilledema, optic disc margins sharp. No A-V nicking, A/V ratio 2/3. No exudstes or hemorrhages seen.

In summary, the patient has no documentable signs of cardiovascular disease at the present time.

Very truly yours,

T.D. Butress, M.D.
Cardiologist

GASTRO-INTESTINAL REPORT

RE: Smith, Suzanne J.

FAMILY HISTORY: No family history of C.A. (e.g. familial polyps) or chronic G-H problems.

PAST HISTORY: No history of chronic abnormal pain, indegestion, alcohol ingestion, nor post-prandial discomfort.

PHYSICAL EXAMINATION: Abdomen soft, scaphoid no organomegaly, or abnormal masses palpable. no tenderness.

Bowel sounds WNL.

Rectal examination normal, no lesions palpable, no evidence of perianal disease.

Stool quiac test neg. (test for blood in stool).

DIAGNOSIS/RECOMMENDATIONS: There appears to be no evidence of gatro-oriented disease or complications at this time and no further examinations are recommended.

Sincerely,

F. Danker, M.D.

CASE STUDY A

GENERAL MEDICAL EXAMINATION

RE: Smith, Suzanne J.

Physician: J. Kelly

1. Family History

	YES	NO
A. Tuberculosis		X
B. Heart Disease		X
C. Cancer		X
D. Diabetes		X
E. Mental Illness		X

2. Patient's History

	YES	NO
A. Rhuematic Fever		X
B. Tuberculosis		X
C. Diabetes		X
D. Heart Disease		X
E. Allergies		X
F. Mental Illness		X

3. Operations/Injuries: Open amputation left arm.

4. Present Complaints: Apparent loss of left elbow flexion and extension. Patient appears somewhat anxious. (VR referral)

5. Physical Examination:

A. General

1. Weight: 128 lbs.
2. Height: 65 inches
3. Blood Pressure: 120/80
4. Pulse: 70
5. Blood Tests: Normal
6. Urinalysis: Normal

B. Abnormalities were found in:

	YES	NO
1. Eyes		X
2. Ears, Nose, Throat		X
3. Respiratory		X
4. Cardio-Vascular		X
5. Gastro-Intestinal		X
6. Genito-Urinary		X
7. Muscular-Skeletal	X	
8. Psychiatric		X
9. Neurological		X

6. Medication: Tetracycline, 1 mg. BID Demorol, 100 mg. prn every 4 hrs.

7. Comments: 5B7 and 5B9 -- muscle, bone, and nerve damage as a result of amputation.

Diagnosis: Below elbow amputation: short healing.

Recommendations: Loss of flexion and extension of left elbow may necessitate vocational training in line with disability.

CASE STUDY A

NEUROLOGICAL REPORT

RE: Smith, Suzanne J.

PAST HISTORY: Family and personal history are unremarkable. There is no family history of neurological disease, such as C.A., M.S., C.P., lack of coordination, muscle strength, dimetia or other psychiatric disorders. Patient denies dizziness, loss of balance, paresthesias, blurred vision, and headaches. There is no history of exposure to heavy metals or trauma to the head.

PRESENT EXAMINATION: On examination, the cranial nerves were found to be intact. Spinal nerves were intact. Babinski, D.T.R.'s, and knee jerk reflexes were present and appeared normal. Sensations of pain, cold, warmth, ligth touch, and position were normal. The Romberg test was negative. The patient had good range of motion and strength in all extremities.

DIAGNOSIS: The patient had no symptoms of neurological problems. The physical examination was within normal limits. It does not appear that the patient has any neurological disease.

Very truly yours,

N. J. Donaldson, M.D.
Neurologist

CASE STUDY A

ORTHOPEDIC REPORT

RE: Smith, Suzanne J.

PAST HISTORY: No family history of bone diseases congenital or otherwise. Patient was involved in an automobile accident which resulted in amputation of the limb. Surgery report indicates the following was performed:

1) Debridement of stump
2) Revision, extensive, with partial closure, left, open below elbow stump
3) Split thickness skin graft from left thigh to left stump
4) Imeediate postsurgical fitting with prosthesis.

Since discharge from the hospital, has been seen in follow-up on several occasions.

PATIENT EXAMINATION: This patient has suffered an open amputation of the left forearm which did not heal after initial closure, and required extensive debridement, revision, and skin grafting to obtain healing. The stump is healing satisfactorily; however, with continued examination it has become evident that there has been peripheral nerve damage, probably at the brachical plexus level as evident by clinical examination and electromyography.

DIAGNOSIS:

(1) Below elbow amputation, short, healing
(2) Brachial plexus injury with loss of flexion and extension, left elbow

This patient has had a severe injury. In addition to being a below elbow amputee, he has motor nerve loss which is not likely to return and will limit the effectiveness of the prosthetic fitting. A patient with a normal below wlbow stump would have effective use and gainful employment. However, prosthetic replacement on Ms. Smith will be limited as shw will functionally be that of an above elbow level amputee, based on the present evaluation.

Sincerely,

P. H. Merriam, M.D.

PSYCHIATRIC REPORT

RE: Smith, Suzanne J.

BACKGROUND: A review of family history did not reveal any incidence of mental illness nor has Ms. Smith had previous episodes of mental instability.

EVALUATION: Patient arrived on time for interview, was well dressed, and responded well to direct qeustions, wlthough little information was freely volunteered. There was no significant barrier to conversation during the interview. Psychiatric evaluation indicated that the patient was orineted with respect to time, place and person. No reports of delusions, hallucinations, feelings of persecution, or excessive depression were elicited. The patient has experienced feelings of anxiety, but within normal limits and specific to stress situations. Ego strength appeared adequate and present family relationships appear to be satisfactory. The patient is coping well with her disability.

RECOMMENDATIONS/IMPRESSIONS: No significant signs of psychiatric disturbance were noted and there is no need for psychotherapy or psychotropic medication at this time. This patient seems well motivated for rehabilitation, but may become anxious under stressful situations.

Sincerely,

A. K. Eddings, M.D.

CASE STUDY A

RESPIRATORY REPORT

RE: Smith, Suzanne J.

HISTORY: No family or patient history of T.B., emphysema, asthma, bronchitus, etc. No complaints or shortness of breath, coughing-up of blood, or pains in chest. Frequency of colds average 2 per year.

EXAMINATION:

Respiratory rate is less than 20.

Chest sounds normal with no rales or bronchi.

Percussion revealed no areas of resonance or dullness.

Chest showed no deformities such as barrelling, etc.

Routine chest film was negative as were the patch and sputum tests.

EVALUATION/RECOMMENDATIONS: No acute or chronic respiratory problems appear to be present at this time and no further examinations are indicated.

Sincerely,

D.E. Scott, M.D.

CASE STUDY A

SPEECH AND AUDITORY REPORT

RE: Smith, Suzanne J.

HISTORY: No familial or patient history of congenital ear, nose or throat abnormalities or diseases. Patient reports no history of hearing loss, chronic ear infections, drainage from ears, ear ache, headaches, vertigo, tinnitus (ringing or buzzing), lack of coordination. No history of hoarseness, sore throat, or difficult nasal inhalation.

EXAMINATION:

Ears: Ext. ear intact, no mastoid tenderness.

Ear canals clean, no drainage, tympaniz membranes intact, no bulging or retraction, Vasculature normal;

Weber test equal bilaterally;

Rhines tests positive bilaterally, Romberg negative;

Hearing within normal limits db loss greater than 5.

Nose: No deformities of nose or nasopharynx, no adenopathy.

Throat: Tongue freely mobile, no deviation;

Orophasynx clear, no exudates;

Vocal cords freely mobile, no masses seen;

Neck supple with no thyroidmegaly.

EVALUATION/RECOMMENDATIONS: There was no indication that patient has any significant ENT problems and no further examinations are warranted.

Sincerely,

W. T. Thrush, M.D.

CASE STUDY A

UROLOGICAL REPORT

RE: Smith, Suzanne J.

HISTORY: No familial history of C.A., congenital anomalies, diabetes, or renal disease.

No history of: frequent or chronic infection; stones; surgery; dyruria (pain, burning, itching or urination); difficult urination (starting or stopping); incontinence or increased frequency of urination.

EXAMINATION:

Breast: no masses palpable. No ulceration, secretion, or inversion of nipples.

Kidneys not palpable.

Pelvic: no evidence of tumors or abnormal discharge. Size and location of organs WNL.

Urine analysis within normal limits: yellow, clear.

Specific gravity 1.003 - 1.030 pH 4.6 - 8.

Glucose and protein 0.

EVALUATION: There is no evidence of urological problem at this time and no further examinations are warranted.

Sincerely,

L.P. Lippincott, M.D.

VISUAL REPORT

RE: Smith, Suzanne J.

HISTORY:

No familial or patient history of congenital or traumatic opthomological diseases.

Patient reports good vision without problems, no history of pain or loss of vision or change in vision, no history of blurred or distorted vision, no history of chronic headache.

EXAMINATION:

Pupils equal, round, and repond to light and accomodation bilaterally (PERRLA).

Extraocular movements within normal limits.

No defects in visual fields.

Snellen chart examination revealed vision within normal limits in both eyes.

Tonometry normal in both eyes.

EVALUATION/RECOMMENDATIONS : Examination revealed no evidence of visual impairment and no further examinations are recommended at this time.

Sincerely,

J. L. Anderson, M.D.

CASE STUDY A

PSYCHOLOGICAL INFORMATION

Student Smith, Suzanne J. Dist. 57 Date 1-10-78

Birth Date 6 - 15 - 60 CA 17

Grade 12

Psychometrics: (Circle) [✓ Intelligence] Interest Aptitude Personality Percept.-Motor

Test(s) Wechsler Adult Int. Scale By JBD Date 1-10-78

By ______ Date ______

Findings: Full Scale: Scaled Score 91 IQ 93

Verbal: 53 IQ 98

Performance: 38 IQ 86

Tests:

	Raw	Scaled Score	Age-Scaled
Information	16	10	11
Comprehension	15	9	9
Arithmetic	8	7	8
Similarities	9	8	8
Digit Span	10	9	9
Vocabulary	41	10	12
Verbal Score		53	
Digit Symbol	23	5	4
Picture Completion	8	7	7
Block Design	29	9	10
Picture Arrange.	18	8	7
Object Assy.	28	9	9
Performance Score		38	
Total Score		91	

Remarks:

Presence of below elbow amputation - Performance score influence.

PSYCHOLOGICAL INFORMATION

Student Smith, Suzanne J. Dist. 57 Date 1 - 10 - 78

Birth Date 6 - 15 - 60 CA 17

Grade 12

Psychometrics: (Circle) Intelligence [✓ Interest] Aptitude Personality Percept.-Motor

Test(s) California Picture Interest Inventory (Grades 7 - Adult) By JBD Date 1 - 10 - 78

By ______ Date ______

Findings:

Interpersonal Service	-	90 %ile	Raw Score	25
Natural	-	40 %ile		21
Mechanical	-	20 %ile		18
Business	-	50 %ile		22
Esthetic	-	40 %ile		15
Scientific	-	80 %ile		27
Supplemental Scales				
Verbal	-	60 %ile		10
Computational	-	80 %ile		16
Time Perspective	-	90 %ile		12

Remarks:

PSYCHOLOGICAL INFORMATION

Student Smith, Suzanne J. Dist. 57 Date 3 - 15 - 78

Birth Date 6 - 15 - 60 CA 17

Grade 12

Psychometrics: (Circle) Intelligence Interest [✓ Aptitude] Personality Percept.-Motor

Test(s) Non-Reading Aptitude Test Battery (NATB)(U.S. Dept. of Labor) By JBD Date 3 - 15 - 78

By ____ Date ____

Findings:

General Learning Ability	-	Std. score	95
Verbal	-		74
Numerical	-		89
Spatial Perception	-		99
P-Form Perception	-		98
Q-Clerical Perception	-		105
K-Motor Coordination	-		85
F-Finger Dexterity	-		65
M-Manual Dexterity	-		62

Note: Standard scores: mean = 100; std. dev. = 20

Remarks:

Motor coordination, finger and manual dexterity sub-tests influenced by below elbow amputation.

PSYCHOLOGICAL INFORMATION

Student Smith, Suzanne J. Dist. 57 Date 4-2-78

Birth Date 6 - 15 - 60 CA 17

Grade 12

Psychometrics: (Circle) Intelligence Interest Aptitude [✓ Personality] Percept.-Motor

Test(s) Work Values Inventory By JBD Date 4-2-78

By Date

Findings:

Altruism:	96 %ile
Esthetic:	76
Creativity:	84
Intellectual Stimulation:	68
Achievement:	79
Independence:	43
Prestige:	72
Management:	23
Economic Returns:	18
Security:	38
Surroundings:	76
Supervisory Relations:	78
Associates:	84
Way of Life:	17
Variety:	65

Remarks:

CASE STUDY A

PSYCHOLOGICAL INFORMATION

Student Smith, Suzanne J. Dist. 57 Date 5-10-78

Birth Date 6 - 15 - 60 CA 17

Grade 12

Psychometrics: (Circle) Intelligence Interest Aptitude Personality [✓ Percept.-Motor]

Test(s) Motor: Crawford Small Parts Dexterity Test By JBD Date 5-10-78

By Date

Findings:

Part I: (Pins and Collars) 20 % 5 min. 50 secs.

Part II: (Screws) 30 % 10 min. 43 secs.

Norm: Assembly Job Applicants - Female Adults

Remarks:

CASE STUDY A

GRADE REPORT

Student Smith, Suzanne J. District 57 Date 1 - 14 - 79
Birthdate 6 - 15 - 60 Grade Graduated 6-78
Present Status Graduate

Grade Level	Course	Term I	Term II
12	English	C	C
	Government/History	C	B
	Reading	B	B
	Basic Math	C	C
	Home Economics (Apparel)	A	A
	Physical Education	C	
	Health		B
	Choir	B	B
11	English	C	C
	Social Studies	C	B
	Reading	B	A
	Home Economics (Foods)	B	B
	Physical Education	C	B
	Choir	B	A
10	English	C	C
	Biology	C	C
	Reading	A	B
	Physical Education	B	C
	Choir	B	B
	Study Hall	S	S

CASE STUDY A

PERFORMANCE REPORT

(Pre-vocational Trait Rating)

Name of Student Smith, Suzanne J. Date 4-15-78

Rater/Teacher S. Wood

Instructions to Rater/Teacher: Please make a check mark beside the statement which best describes this student. You will find space for comment after each of the ratings. These comments will be especially helpful, and I will appreciate your mentioning anything which will be of help in understanding this student.

1. GROOMING (check one)

_X_ Good (does as well as possible with his/her personal characteristics)
___ Usually well-groomed and clean, but not always.
___ Only moderately (or only at times) well-groomed and clean
___ Poorly groomed most of the time

Comment:

2. RELATIONSHIPS TO OTHER STUDENTS (check one)

___ Quick to make friends with everyone
_X_ Generally friendly, but sometimes hesitant
___ Not unfriendly, but not much interested in other students
___ Definitely hostile, withdrawn or shy

Comment:

3. ACCEPTANCE BY OTHER STUDENTS (circle the number which would best place this student between the given extremes)

Is always sought out as a leader or friend 1 [✓ 2] 3 4 5 Is always rejected or avoided by this group

Comment:

4. RELATION TO AUTHORITY (check one)

___ Over-compliant, "bows and scrapes" too much
_X_ Good, no problem
___ Somewhat resistant or evasive
___ Openly rebellious

Comment:

5. DIRECTIONS AND INSTRUCTIONS (check one)

___ Impossible for him/her to understand instruction in classroom

___ Understands only after repeated instructions and directions

_X_ Understands simple instructions, difficulty in complex instructions

___ Understands at or near normal rate

Comment: Has difficulty with written directions.

6. RULES OF GENERAL BEHAVIOR (circle number which best places this person between given extremes)

ATTITUDE:

Believes in the rules [✓ 1] 2 3 4 5 Does not accept rules

UNDERSTANDING:

Understands the rules easily [✓ 1] 2 3 4 5 Unable to understand

SELF-CONTROL:

Follows all the rules 1 [✓ 2] 3 4 5 Breaks all the rules

Comment:

7. PERSISTENCE IN CARRYING OUT ASSIGNED TASKS (check one)

___ Over-persistent, can't seem to turn self off or know when done

_X_ Normally persistent, keeps at a thing until finished

___ Gives up easily

___ Can't seem to stick to a task at all

Comment:

8. ESTIMATE the grade level at which the student can actually do successful work on a day-to-day basis in:

Reading (mechanics of reading as a skill)	5.5
Reading (comprehension of what he/she can read)	5.2
Applied Arithmetic	6.8
Social Studies	11.0

Comment: Has had considerable difficulty with studies due to reading problems.

9. REMARKS:

Suzanne is a pleasant student who makes a consistent effort to succeed in her studies. Has adjusted well to amputation but has difficulties with academic requirements due to reading difficulties.

CASE STUDY A

ANECDOTAL RECORD/TEACHER OBSERVATION

RE: Smith, Suzanne J.

Teacher: I. N. Smith Date 4-21-77

Situation: Suzanne had recently returned after an automobile accident which resulted in the amputation of one of her arms. She was in the lab of the home economics class, working on the preparation of a luncheon that was a portion of the final performance examination for the course.

Observation: Suzanne was attempting to prepare a souffle' for her portion of the meal. She became frustrated with her inability to handle the equipment (blender, bowls, etc.), due to the lack of her arm. She has not been fitted with a prosthesis at this point, evidently due to some complications which have arisen. At one point, she accidently bumped the bowl of ingredients on to the floor and stormed out of the class, with tears in her eyes.

Remarks: I talked with Suzanne immediately after this occurrence, both about her frustration and possible solutions to the problems she is having. She seemed to accept the advise positively and stated that she would like to try out some of the ideas which we talked about. Based upon my previous dealings with Suzanne, I feel that she will be able to adjust to her handicap and find ways of improving her abilities.

CASE STUDY A

ATTENDANCE RECORD

RE: Smith, Suzanne J.

School: Motgomery High School, Montgomery, Minnesota

Year	Semester	Days Missed	Remarks:
1977-78	I	2/ 90	
	II	3/ 93	
1976-77	I	15/ 89	Missed time due to auto accident - Tutor supplied during hospitalization and home confinement.
	II	20/ 94	
1975-76	I	3/ 90	
	II	3/ 93	

CASE STUDY A

READING/MATH TESTING

Student: Smith, Suzanne J.

Date: 3 - 10 - 78

School: Montgomery High School

Tester: SRP

Achievement Testing: Wide Range Achievement Test (WRAT) (Level II)

Test (Date)	Scores	Norms (C.A. 16-17 yrs)
3 - 10 - 78	Reading: RAW: 15	GRADE: 5.2 %ILE: Below 1% STAND: 55
	Spelling: RAW: 31	GRADE: 4.8 %ILE: 58% STAND: 103
	Arithmetic: RAW: 24	GRADE: 7.1 %ILE: 27% STAND: 91

EDGAR A. DOLL, Ph.D.
Consulting Psychologist
Bellingham, Washington, Public Schools
Formerly Director of Research
The Training School at Vineland, N. J.

Vineland Social Maturity Scale

263

CASE STUDY A

NAME Smith, (Last) Suzanne (First) Sex F Grade 12 Date 1978 (Year) 03 (Month) 10 (Day)

Residence Montgomery, Minnesota School Montgomery HS Born 1960 (Year) 06 (Month) 15 (Day)

M.A. - I.Q. 93 Test Used WAIS When 1-10-78 Age 17 (Years) 02 (Months) 25 (Days)

Occupation Student Class Senior Years Exp. - Schooling 12

Father's Occupation Carpenter Class - Years Exp. 15 Schooling 12

Mother's Occupation Housewife Class - Years Exp. - Schooling 12

Informant Betty Smith Relationship Mother Recorder JJT

Informant's est.

Basal Score*

Handicaps Orthopedic/problems in raading

Additional pts.

REMARKS:

Total score

Age equivalent

Social quotient

Age Periods

O - I

Category†	Score*	Items	LA Mean
C	+	1. "Crows"; laughs	.25
SHG	+	2. Balances head	.25
SHG	+	3. Grasps objects within reach	.30
S	+	4. Reaches for familiar persons	.30
SHG	+	5. Rolls over	.30
SHG	+	6. Reaches for nearby objects	.35
O	+	7. Occupies self unattended	.43
SHG	+	8. Sits unsupported	.45
SHG	+	9. Pulls self upright	.55
C	+	10. "Talks"; imitates sounds	.55
SHE	+	11. Drinks from cup or glass assisted	.55
L	+	12. Moves about on floor	.63
SHG	+	13. Grasps with thumb and finger	.65
S	+	14. Demands personal attention	.70
G	+	15. Stands alone	.85
[illegible]	+	16. Does not drool	.90
[illegible]	+	17. Follows simple instructions	.93

† Categorical arrangement of items:
SHG — Self-help general
SHD — Self-help dressing
SHE — Self-help eating
C — Communication
SD — Self-direction
S — Socialization
L — Locomotion
O — Occupation

* For method of scoring see "The Measurement of Social Competence."

American Guidance Service, inc.
720 Washington Avenue S.E. Minneapolis, Minnesota 5?414

I - II

L	+	18.	Walks about room unattended	1.03
O	+	19.	Marks with pencil or crayon	1.10
SHE	+	20.	Masticates food	1.10
SHD	+	21.	Pulls off socks	1.13
O	+	22.	Transfers objects	1.20
SHG	+	23.	Overcomes simple obstacles	1.30
O	+	24.	Fetches or carries familiar objects	1.38
SHE	+	25.	Drinks from cup or glass unassisted	1.40
SHG	+	26.	Gives up baby carriage	1.43
S	+	27.	Plays with other children	1.50
SHE	+	28.	Eats with spoon	1.53
L	+	29.	Goes about house or yard	1.63
SHE	+	30.	Discriminates edible substances	1.65
C	+	31.	Uses names of familiar objects	1.70
L	+	32.	Walks upstairs unassisted	1.75
SHE	+	33.	Unwraps candy	1.85
C	+	34.	Talks in short sentences	1.95

II - III

SHG	+	35.	Asks to go to toilet	1.98
O	+	36.	Initiates own play activities	2.03
SHD	+	37.	Removes coat or dress	2.05
SHE	+	38.	Eats with fork	2.35
SHE	+	39.	Gets drink unassisted	2.43
SHD	+	40.	Dries own hands	2.60
SHG	+	41.	Avoids simple hazards	2.85
SHD	+	42.	Puts on coat or dress unassisted	2.85
O	+	43.	Cuts with scissors	2.88
C	+	44.	Relates experiences	3.15

III - IV

L	+	45.	Walks downstairs one step per tread	3.23
S	+	46.	Plays cooperatively at kindergarten level	3.28
SHD	+	47.	Buttons coat or dress	3.35
O	+	48.	Helps at little household tasks	3.55
S	+	49.	"Performs" for others	3.75
SHD	+	50.	Washes hands unaided	3.83

IV - V

SHG	+	51.	Cares for self at toilet	3.83
SHD	+	52.	Washes face unassisted	4.65
L	+	53.	Goes about neighborhood unattended	4.70
SHD	+	54.	Dresses self except tying	4.80
O	+	55.	Uses pencil or crayon for drawing	5.13
S	+	56.	Plays competitive exercise games	5.13

V - VI

O	+	57. Uses skates, sled, wagon	5.13
C	+	58. Prints simple words	5.23
S	+	59. Plays simple table games	5.63
SD	+	60. Is trusted with money	5.83
L	+	61. Goes to school unattended	5.83

VI - VII

SHE	+	62. Uses table knife for spreading	6.03
C	+	63. Uses pencil for writing	6.15
SHD	+	64. Bathes self assisted	6.23
SHD	+	65. Goes to bed unassisted	6.75

VII - VIII

SHG	+	66. Tells time to quarter hour	7.28
SHE	+	67. Uses table knife for cutting	8.05
S	+	68. Disavows literal Santa Claus	8.28
S	+	69. Participates in pre-adolescent play	8.28
SHD	+	70. Combs or brushes hair	8.45

VIII - IX

O	+	71. Uses tools or utensils	8.50
O	+	72. Does routine household tasks	8.53
C	+F	73. Reads on own initiative	8.55
SHD	+	74. Bathes self unaided	8.85

IX - X

SHE	+	75. Cares for self at table	9.03
SD	+	76. Makes minor purchases	9.38
L	+	77. Goes about home town freely	9.43

X - XI

C	+F	78. Writes occasional short letters	9.63
C	+	79. Makes telephone calls	10.30
O	+	80. Does small remunerative work	10.90
C	+F	81. Answers ads; purchases by mail	11.20

XI - XII

O	+	82. Does simple creative work	11.25
SD	+	83. Is left to care for self or others	11.45
C	+F	84. Enjoys books, newspapers, magazines	11.58

XII - XV

		85. Plays difficult games	[illegible]
[illegible]		86. Exercises complete care of dress	12.58
[illegible]		87. Buys own clothing accessories	13.00
		88. Engages in adolescent group activities	14.10
		89. Performs responsible routine chores	14.65

200

XV - XVIII

C	0	90. Communicates by letter	14.95
C	+F	91. Follows current events	15.35
L	+	92. Goes to nearby places alone	15.85
SD	+	93. Goes out unsupervised daytime	16.13
SD	+	94. Has own spending money	16.53
SD	+	95. Buys all own clothing	17.37

XVIII - XX

L	+	96. Goes to distant points alone	18.05
SD	+F	97. Looks after own health	18.48
O	0	98. Has a job or continues schooling	18.53
SD	+F	99. Goes out nights unrestricted	18.70
SD	±F	100. Controls own major expenditures	19.68
SD	+F	101. Assumes personal responsibility	20.53

XX - XXV

SD	+F	102. Uses money providently	21.5+
S	+F	103. Assumes responsibility beyond own needs	21.5+
S	0	104. Contributes to social welfare	25+
SD	0	105. Provides for future	25+

XXV+

O	0	106. Performs skilled work	25+
O	+F	107. Engages in beneficial recreation	25+
O	0	108. Systematizes own work	25+
S	0	109. Inspires confidence	25+
S	0	110. Promotes civic progress	25+
O	0	111. Supervises occupational pursuits	25+
SD	0	112. Purchases for others	25+
O	0	113. Directs or manages affairs of others	25+
O	0	114. Performs expert or professional work	25+
S	0	115. Shares community responsibility	25+
O	0	116. Creates own opportunities	25+
S	0	117. Advances general welfare	25+

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CASE STUDY A

SOCIAL WORKER REPORT

RE: Smith, Suzanne J.

Family History: Ms. Smith is single and presently lives with her parents and two brothers, ages 12 and 16. From previous information, it appears that Ms. Smith has a positive relationship with her family and plays an active role in its functions. Her parents own their home and are able to provide adeqaute shelter, food, clothing and necessities for her and fellow siblings. Mr. Smith is a Carpenter and Mrs. Smith is a housewife. Both are active in the community and their church.

Current Situation: Ms. Smith has not acquired any work experience, due to both her disability and the availability of work training programs in the high school which she attended. However, she has stated interest in working with people, primarily in the nurse-patient relationship. She gets along well with people, despite her handicap. She has applied for the Practical Nursing program at District 6 AVTI, which will require her to live away from home for the first time. Since this is the first occurrence that she will have in managing her own affairs, the parents are quite concerned about living arrangements and support that she may need if she has difficulty in adjusting to the new surroundings.

Summary and Recommendations: Ms. Smith has adjusted quite well to her handicap and it has not impaired her relationships with her family and others. She is presently interested in training as a Practical Nurse. This will require that she move away from her family for an extended period of time. It is recommended that Ms. Smith be provided with this type of training and that housing arrangements be made in cooperation with her parents.

Sincerely,

H. L. Bird, M.S.W.

CASE STUDY A

ECONOMIC STATUS

RE: Smith, Suzanne J.

Current Situation: Ms. Smith has recently graduated from high school and has been living in her parents home. She has not had previous employment. She has been dependent on her parents and the Division of Vocational Rehabilitation for finances to this point. Economic needs of this student upon entry into the Practical Nursing program will include: housing; food; clothing; books; uniforms and materials; tuition; transportation; and spending money. Her parents have completed the necessary forms for application for the BEOG grant and related financial aids programs.

Summary and Recommendation: Further investigation of this students financial condition indicate that the Division of Vocational Rehabilitation, her parents, and a BEOG grant will satisfactorily meet the financial requirements for her participation in the Practical Nursing program at District 6 AVTI. DVR will be picking up the costs of books, uniforms and materials in full, while splitting the costs (50%/50%) with the family for her maintenance. The BEOG grant will cover the costs of tuition for the total program including her clinical experience requirement.

Sincerely,

J. Dayton, Vocational Counselor
Financial Aids Officer

WORK HISTORY

RE: Smith, Suzanne J.

According to the student's application and contacts with their previous school and rehabilitation counselor, no record of any paid employment or OJT experiences are indicated. Discussion with parents also indicate that the student has had no work history.

Sincerely,

J. Armbruster
Vocational Counselor

CASE STUDY A

OJT PERFORMANCE REPORT

RE: Smith, Suzanne J.

Telephone conversation with principal at previous high school and vocational rehabilitation counselor indicate no previous OJT experiences.

Sincerely,

J. Dayton, Vocational Counselor

VOCATIONAL EVALUATION REPORT

RE: Smith, Suzanne J

I. General Description:

Initial impressions were those of an extremely friendly, active young woman who seems to have adjusted to her disability. She had some difficulty in filling out the application forms do to coordination problems associated with her disability. Daily attire was appropriate for the work situation and there were no evident problems regarding grooming or hygiene.

During the evaluation, Suzanne was extremely cooperative and appeared quite motivated in that she attempted all assigned materials and tasks. She adjusted very well to the evaluation setting and interacted appropriately with other clientele and supervisors. Throughout the evaluation, Suzanne expressed a liking for working with people, specifically in the area of nursing.

II. Recommendations:

The following vocational plans were developed in view of evaluation results:

A. Immediate:
   1. Enrollment in a Practical Nursing program at District 6 Area Vocational-Technical Institute.
   2. Secure suitable housing and transportation that will enable her to participate in the program.
   3. Continue to monitor the fitting of the prosthesis, to insure that no futher complications arise.

B. Long Term:
   1. Vocational counseling and training in job seeking skills.
   2. Placement in full-time employment. Recommend entry level practical nursing position, possibly in a nursing home or hospital setting.

Rationale: Suzanne has had an on-going interest in this work. She has no apparent personal problems which will conflict with this job and has definite assets which relate to the requirements of a competitive worker in this area.

Sincerely,

J. W. Watt
Evaluator

CASE STUDY A

CASE NOTES - INDIVIDUAL INTERVIEW

RE: Smith, Suzanne J.

Suzanne, a caucasian female, came in today for an interview regarding her acceptance into the Practical Nursing program. The student felt that she needed assistance, due to her apparent handicap (arm amputation). This case was a referral from the Vocational Guidance office of the AVTI and by the wishes of the student.

Suzanne stated that she has had no paid work experience but has had responsibility for many of the household chores, including shopping and related duties. She has been somewhat active in church and community activities and has a strong liking for people of many ages. She states an interest in becoming a nurse.

We discussed the course requirements and possible involvement of her Vocational Rehabilitation Counselor and parents. We will be meeting again prior to the end of the first week of the program, with her counselor and parents, to determine the appropriate services necessary to meet her needs.

CASE NOTES - STAFF CONFERENCE NOTES

RE: Smith, Suzanne J.

No staffing has been held with Suzanne, her parents, VR counselor, or AVTI staff at this time. A conference has been scheduled for the beginning of the second week of the term, to further specify required services and arrangements that are necessary. Potential service needs, both vocational and educational, will be brought up at this meeting by the Special Needs department staff.

APPENDIX C

CASE STUDY B

CASE STUDY B

District #6 Area Vocational-Technical Institute

Statement of Institutional Philosophy and Policy

It is the philosophy of this educational institution, to insure the maximum opportunity for individuals to participate and succeed in the vocational education program of their choice and later employment. To insure that an atmosphere conducive to these aims does exist, the policy of this institution is to provide and/or secure the services necessary to enable the individual to participate and succeed in the vocational program of their choice.

District #6 Area Vocational-Technical Institute

REFERRAL FOR SERVICES

Student: Allen, Bradley R. Date: 3-15-79

Referring Counselor: A. F. Langley

To: Special Needs Department

Reason for Referral: During the initial interview with this applicant, several potential problems were encountered which may require your attention. Discussion and observations indicate that several physical, mental and/or emotional difficulties may be present, which will potentially hinder their success in the program selected. Economic difficulties may also be a hardship.

Comments: I have taken the liberty of sending along copies of a number of reports and related information, which may prove helpful in fully diagnosing the needs of this student. Please identify which services, etc., are appropriate so that we may plan a program of study for this student.

CASE STUDY B

APPLICATION FOR ENROLLMENT IN THE VOCATIONAL–TECHNICAL INSTITIUTE

District 6 AREA
Name of School

277

(FOR OFFICEUSE ONLY)
Date Received ____
Date Accepted ____
Tuition Rate: ____ No. Days ____
Student # ____ Agency Funded ____

ECTIONS: Complete all of this application. Answer every item which pplies to you. Be sure to mail or bring the Transcript Release Permission portion to the last high school or post-secondary school you attended or are attending (other than the AVTI to which you are applying.)

(1) Date of application 3 - 15 - 79

(2) Date student is available to start Immediately

(3) Program for which I would like to enroll: Auto Mechanics (First choice) ____ (Alternate choice)

(4) NAME Allen (Last) Bradley (First) Robert (Middle)

(5) Address 319 - 8th Street Sout (Street) Middletown (City)
Polk (County) Minnesota (State) 55463 (Zip Code)

Note: If address changes during application process, please notify the school.

(6) Name used on high school records, if different from # 4 ____ (Last) (First) (Middle)

(7) Name and address of last high school attended Middletown H.S. School District # 164

(8a) Birth date 2 - 15 - 60 (8b) Age 19 (8c) Social Security # 471-52-9999

(9) Home phone No. (612) 922-8419 Work phone No. (-) - Phone to leave message (-) -

(10) Name of parent, guardian or spouse Richard C. Allen Telephone number (612) 922-8419

(11) Address 319 - 8th Street So., Middletown, Minnesota 55463

(12) Date or expected date of high school graduation (month) May (year) 1978

(13) If not graduated, last date attended: (month) - (year) -

(13a) Circle highest grade you completed or are currently completing: 7, 8, 9, 10, 11, [✓ 12] 13, 14, over 14.

(14) If not graduated, do you hold a GED certificate? Yes ___ No ___ If yes, year completed ____

No ____ Don't know ____

If yes: Name of center ____

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Name of course ____

(16) Post high school training or education (including military schools):

Name	Dates	Type of program	Hours or credits, months, etc.
None			

(17) Work experience: Include military experience (list most recent experience first)

Employing firm or company	Address	Dates employed	Type of work or job title
None			

(Additional employment or related experiences may be listed below if desired.)

(18) Are you a Minnesota Resident? Yes X No ____

(19) How do you plan to finance any expenses involved in this training? Don't know what is available
(check one or more):

____ Family
____ Savings
____ Work Study
____ Scholarship
____ Other financial aids
____ Part time work
____ Other (specify)

X Vocational Rehabilitation (DVR)
____ Comp. Employment Trng Act (CETA)
____ Bureau of Corrections
____ Bureau of Indian Affairs
____ Veterans Benefits
____ Vets Rehab

____ Social Security
____ Work Incentive (WIN)
____ Welfare (list County and State)
____ Vets War Orphans
____ Chippewa Tribe

Name of agency contact person David Anderson

(20) What are your career plans for the future? "Get a job."

How do you expect training will help you? "Train me so I can get a job."

APPLICANT'S SIGNATURE Bradley R. Allen

How did you first learn of this AVTI? Vocational rehabilitation counselor

Printed by Dakota County AVTI Graphic Communications Students

CASE STUDY B

Course Title: MECHANICS, AUTO

Name of School: District #6 Area Vocational-Technical Institute

Admission Dates: January, April, July and October - Application should be made 60 days prior to desired starting date.

Nature of Work: The auto mechanic repairs and overhauls automobiles, buses, trucks and other vehicles, discusses needed repairs with the customer service manager or foreman. He plans the work and makes the repairs; he removes the faulty unit (engine, transmission or other part) disassembles it, inspects parts for wear using micrometers, calipers and thickness gauges. He overhauls or replaces carburetors, generators, distributors and starters; rebuilds parts using lathes, shapers, drill presses and welding equipment; rewires ignition systems, relines and adjusts brakes, aligns fron end, repairs or replaces shock absorbers, solders radiators. He will install and repair radios, heaters, mirrors and windshield wipers. A mechanic may specialize in one or more of these areas.

Job Opportunities: Auto mechanics are in demand in service shops, dealerships, by fleet operators and business concerns which maintain fleets of trucks and cars and by buslines. There are excellent opportunities for owning your own business.

Course Description:

- Repairing and overhauling of engines
- Electrical systems
- Fuel systems
- Brakes
- Steering gears
- Power trains and automatic transmissions
- Wheel alignment and balancing
- Shop safety and work habits

Classroom studies in theory plus manipulative skills learned in shop instruction and practices give students a complete automotive background.

Length of Course: 2 years

Helpful High School Courses:

- Industrial arts
- Mathematics
- Sciences
- English

Personal Qualities:

- Good physical and emotional health
- Good grooming and physical appearance
- Ability to communicate and get along well with others

Personal Equipment Needed: Books ($30.00), Tools - must be purchased by the student $125 (approximately), coveralls

Expenses: Registration fee - $25, Course fee-$30, Tuition-Check with the Director or Counselor

CASE STUDY B

CARDIO-VASCULAR REPORT

RE: Allen, Bradley R.

FAMILY HISTORY: No family history of diabetes meelitus, heart disease (primary arterioscloerotic hear disease).

PAST HISTORY: No history of hypertension, diabetes or hear disease. No history of chest pain, shortness of breath orthopnea or intermittent claudication (pain in legs brought about by walking), no history of edema.

PHYSICAL EXAMINATION: Vital Signs - B.P. 115/80, pulse 80/regular, Chest: Clear. no rales or Bronchi.

CV: All heart sounds present (S_1,S_2 (with or without functional splitting), no extra sounds (clicks, snaps or murmurs).

No cardiac enlargement.

Ext.: No edema, cyanosis, color good, warmth, presence of hair, good nails.

Eyes: Eye grounds WNL. No evidence of papilledema, optic disc margins sharp. No A-V nicking. No exudstes or hemorrhages seen.

EVALUATION/RECOMMENDATIONS: Patients cardio-vascular condition is unremarkable.

Very truly yours,

T. D. Butress, M.D.
Cardiologist

GASTRO-INTESTINAL REPORT

RE: Allen, Bradley R.

HISTORY: No family history of carcinoma or chronic G-I problems.

No client history of chronic abnormal pain, frequent indigestion, or alcohol ingestion.

No history of hematosis, melena, bright red blood in stools, no pain on defecation, no change in bowel habits, bowels brown and formed, no hemorroids.

PHYSICAL EXAMINATION:
Abdomen soft, scaphoid no organomegaly, or abnormal masses palpable, no tenderness.

Bowel sounds negative.

Rectal examination normal, no lesions palpable, no evidence of perianal disease, or hemorrhoids.

Stool quiac test - negative (test for blood in stool).

EVALUATION/RECOMMENDATIONS: No evidence of G-I oriented disease or complications at this time. No further tests or examinations recommended.

Sincerely,

F. Danker, M.D.

CASE STUDY B

GENERAL MEDICAL EXAMINATION

RE: Allen, Bradley R. Physician: J. Kelly

1. Family History

		YES	NO
A.	Tuberculosis		X
B.	Heart Disease		X
C.	Cancer		X
D.	Diabetes		X
E.	Mental Illness		X

2. Patient's History

		YES	NO
A.	Rhuematic Fever		X
B.	Tuberculosis		X
C.	Diabetes		X
D.	Heart Disease		X
E.	Allergies		X
F.	Mental Illness		X

3. Operations/Injuries:

4. Present Complaints:

5. Physical Examination:

A. General

1. Weight 160 lbs.
2. Height: 70 inches
3. Blood Pressure: 110/80
4. Pulse: 70
5. Blood Tests: Normal
6. Urinalysis: Normal

B. Abnormalities were found in:

		YES	NO
1.	Eyes		X
2.	Ears, Nose, Throat	X	
3.	Respiratory		X
4.	Cardio-vascular		X
5.	Gastro-Intestinal		X
6.	Genito-Urinary		X
7.	Muscular-Skeletal		X
8.	Psychiatric		X
9.	Neurological		X

6. Medication: NONE

7. Comments: Item 5B2 - Severe hearing loss in both ears, apparent cause birth defect due to mother's contracting measles during pregnancy.

Diagnosis: Severe hearing loss in both ears. Minimal remediation brought about through use of hearing aid. Patient utilizes sign language and lip reading.

Recommendations: Severity of hearing loss may necessitate specialized vocational training in line with disability.

NEUROLOGICAL REPORT

RE: Allen, Bradley R.

PAST HISTORY: Family and personal history unremarkable. No family history of neurological disease, such as carcinoma, multiple sclerosis, cerebral palsy, lack of coordination, muscle strength, dimentia or other psychiatric disorders. Patient denies dizziness, loss of balance, paresthesias, blurred vision, and headaches. There is no history of exposure to toxic materials or trauma to the head.

PRESENT EXAMINATION: Upon examination, the cranial nerves were found to be intact. Spinal nerves intact. Babinski, D.T.R.'s and knee jerk reflexes were present and appeared normal. Sensations of pain, cold, warmth, light touch, and position were normal. Romberg test was negative. Patient had good range of motion and strength in all extremities.

DIAGNOSIS: Patient presented no signs of neurological problems. Examination was WNL. No apparent neurological disease at this time.

Very truly yours,

N. J. Donaldson, M.D.
Neurologist

CASE STUDY B

ORTHOPEDIC REPORT

RE: Allen, Bradley R.

PAST HISTORY: Family history reveals no bone diseases, congenital or otherwise. No compaints related to skeletal system. Patient has no history of bone pain, deformity or bone infections. No joint complaints (pain, swelling, increased warmth or deformity) were elicited.

PHYSICAL EXAMINATION: Examination of the patient revealed full range of motion in all joints with no pain or discomfort. No abnormalities were noted.

EVALUATION/RECOMMENDATIONS: No orthopedic treatment or further examination is recommended at this time, based upon findings of this examination.

Sincerely,

P. H. Merriam, M.D.

PSYCHIATRIC REPORT

RE: Allen, Bradley R.

BACKGROUND:

A review of family and personal history revealed no incidence of mental illness.

EVALUATION: Patient arrived on time for interview, was appropriately dressed, and responded adequately to direct questions with aid of an interpretor. Significant barrier to communications was noted, due to inability to understand complex relationships and concepts being addressed during the interview. Extensive explanation of questions was required. Psychiatric evaluation indicated that the patient was oriented with respect to time, place and person. No reports of delusions, hallucinations, persecution or excessive depression was noted. Patient has experienced feelings of anxiety related to lack of communication ability with hearing peers, but within normal limits. Ego strength appeared adequate and present family relationships appear to be satisfactory. Patient appears to be coping satisfactorily with disability.

RECOMMENDATIONS/IMPRESSIONS:

No significant signs of psychiatric disturbance were noted. No need for psychotherapy or psychotropic medication is warranted at this time. Patient seems well motivated for rehabilitation and vocational training, but may have difficulty in communication with non-handicapped peers that may prove to be stressful.

Sincerely,

A. K. Eddings, M.D.

CASE STUDY B

RESPIRATORY REPORT

RE: Allen, Bradley R.

HISTORY: No family or patient history of tuberculosis, emphysema, asthma, bronchitus. etc. was noted. No complaints or shortness of breath, counghing-up of blood, or pains in chest. Frequency of colds average 3 - 4 per year.

PHYSICAL EXAMINATION:

Respiratory rate less than 20.

No rales or bronchi, chest sounds normal.

Percussion - no areas of resonance or dullness.

Chest showed no deformities, barrelling, etc.

Chest film, sputum and patch tests - negative.

EVALUATION/RECOMMENDATIONS: No acute or chronic respiratory problems were evident. No further examinations indicated at this time.

Sincerely,

D. E. Scott, M.D.

CASE STUDY B

SPEECH AND AUDITORY REPORT

RE: Allen, Bradley R.

HISTORY: Congenital deafness - severe. Mother's contraction of measle's during pregnancy.
No other history of trauma associated with hearing loss. No familial history of congenital ear, nose or throat abnormalities. No patient history of nose or throat abnormalities. Patient reports no history of hoarseness, sore throat, or difficult nasal inhalation. Patient reports history of sporadic ear infections, drainage from ears, ear ache, headaches.

EXAMINATION:

Ears: Ext. ear intact, no mastoid tenderness.

Ear canals clean, no drainage at present.

Hearing examination indicates severe hearing loss in both ears:

Right ear: Loss of 70 dbs.
Left ear: Loss of 65 dbs.

Nose: No deformities of nose or nasopharynx
No adenopathy

Throat: Tongue freely mobile, no deviation;
Orophasynx clear, no exudates;
Vocal cords freely mobile, no masses seen;
Neck supple with no thyroidmegaly.

EVALUATION/RECOMMENDATIONS: The patient does not indicate any significant NT problems at this time. Pre-natal loss of hearing showing considerable loss in each ear requires that use of total communications systems (e.g. sign language, written notes, and lip-reading, etc.) necessary to insure that no significant social or related problems will be evident. Recommend that additional examinations be scheduled, when necessary, to further explore reasons for drainage, etc., and to administer appropriate treatments.

Sincerely,

W. T. Thrush, M. D.

CASE STUDY B

UROLOGICAL REPORT

RE: Allen, Bradley R.

HISTORY: No familial history of carcinoma, congenital anomalies, diabetes, or renal disease.

No familial or personal history of: frequent or chronic infection; stones; surgery: dyruria (pain, burning, itching or urination); difficult urination (starting or stopping); incontinence or increased frequency of urination; hematuria.

EXAMINATION:

No costovertebral angle tenderness (CVA).

Kidneys - not palpable.

Prostrate - soft, no abnormal firmness.

Urine analysis WNL - yellow, clear.

Specific gravity: 1.003 - 1.030
pH 4.6 - 8.

Glucose and protein: 0

Addis count: Normal

EVALUATION/RECOMMENDATIONS: No evidence of urological problems at this time. No further examinations warranted.

Sincerely,

L. P. Lippincott, M.D.

VISUAL REPORT

RE: Allen, Bradley R.

HISTORY: No family or patient history of congenital or traumatic opthomological diseases.

Patient reports good vision without problems, no history of pain or loss of vision or change in vision. No history of blurred or distorted vision. No history of chronic headache.

EXAMINATION:
Pupils equal, round and respond to light and accomodation bilaterally (PERRLA).
Extraocular movements WNL.

No defects in visual fields.

Snellen chart - vision WNL in both eyes.

Tonometry - normal in both eyes.

EVALUATION/RECOMMENDATIONS: No evidence of visual impairment presented in examination. No further examinations or treatment required at this time.

Sincerely,

J. L. Anderson, M. D.

CASE STUDY B

PSYCHOLOGICAL INFORMATION

Student Allen, Bradley R. Dist. 164 Date 10-18-77

Birth Date 2 - 15 - 60 CA 17

Grade 12

Psychometrics: (Circle) [✓ Intelligence] Interest Aptitude Personality Perceptual-Motor

Test(s) Cattell Culture Fair Intelligence Test By ADT Date 10-18-77

Scale 3 (High School to Adult) By Date

Findings:

Part I (New) : Total Raw Score 25

Part II : 26

Part I + II : 51

Standard Score I.Q. 103 Std. Dev. =16 points

Percentile Rank 57 %ile

Remarks:

PSYCHOLOGICAL INFORMATION

Student Allen, Bradley R. Dist. 164 Date 12-13-77

Birth Date 2 - 15 - 60 CA 17

Grade 12

Psychometrics: (Circle) Intelligence [✓ Interest] Aptitude Personality Perceptual-Motor

Test(s) Geist Picture Interest Inv. By ADT Date 12-13-77

By Date

Findings:

	Raw Score	T Score
Persuasive:	4	43
Clerical:	1	36
Mechanical:	13	72
Musical:	1	45
Scientific:	1	31
Outdoor:	7	55
Literary:	3	57
Computational:	7	52
Artistic:	4	44
Social Service:	3	53
Dramatic:	3	55

Remarks:

Norm Group: U.S. Mainland Sample - Grade 12 & Remedial Reading (Grades 8 & 10)

CASE STUDY B

PSYCHOLOGICAL INFORMATION

Student Allen, Bradley R. Dist. 164 Date 3-10-78

Birth Date 2 - 15 - 60 CA 18

Grade 12

Psychometrics: (Circle) Intelligence Interest [✓ Aptitude] Personality Perceptual-Motor

Test(s) Minnesota Clerical Test By ADT Date 3-10-78

By Date

Findings: Number Checking: 80 %ile Raw Score 130

Name Checking: 60 %ile 112

Norms: Boys - Grade 12
Mean 107 SD 24

Remarks:

CASE STUDY B

PSYCHOLOGICAL INFORMATION

Student Allen, Bradley R. Dist. 164 Date 3-18-78

Birth Date 2-15-60 CA 18

Grade 12

Psychometrics: (Circle) Intelligence Interest Aptitude [✓ Personality] Perceptual-Motor

Test(s) Work Values Inventory By ADT Date 3-18-78

By Date

Findings:

Altruism:	85 %ile
Esthetic:	23
Creativity:	48
Intellectual Stimulation:	45
Achievement:	78
Independence:	86
Prestige:	85
Management:	88
Economic Returns:	90
Security:	76
Surroundings:	45
Supervisory Relations:	76
Associates:	65
Way of Life:	44
Variety:	68

Remarks:

PSYCHOLOGICAL INFORMATION

Student Allen, Bradley R. Dist. 164 Date 4-10-78

Birth Date 2-15-60 CA 18

Grade 12

Psychometrics: (Circle) Intelligence Interest Aptitude Personality [✓ Perceptual-Motor]

Test(s) Crawford Small Parts Dexterity Test (Motor) By ADT Date 4-10-78

By ________ Date ________

Findings:

Part I: (Pins and Collars) 99 % 3 min. 15 secs.

Part II: (Screws) 95 % 5 min. 30 secs.

Norm Group: Male-Unselected Applicants

GRADE REPORT

Student Allen, Bradley R. District 164 Date 2-15-79

Birthdate 2 - 15 - 60 Grade Graduated 5/78

Present Status Graduate

Grade Level	Course	Term I	Term II
12	English	C	C
	Power Mechanics	B	
	Machine Shop II		B
	Government/History	C	C
	Physical Education	B	
	Health		C
	Basic Math	B	B
11	English	C	C
	Machine Shop I	A	
	Drafting		B
	Social Studies	C	C
	Physical Education	B	B
	Reading	B	C
10	English	C	C
	Physical Education	B	B
	Graphic Arts	C	
	Reading	B	B
	Sheet Metal		A
	General Science	C	C

CASE STUDY B

PERFORMANCE REPORT

(Pre-vocational Trait Rating)

Name of Student Allen, Bradley R. Date 3 - 2 - 78

Rater/Teacher Len Appleton

Instructions to Rater/Teacher: Please make a check mark beside the statement which best describes this student. You will find space for comment after each of the ratings. These comments will be especially helpful, and I will appreciate your mentioning anything which will be of help in understanding this student.

1. GROOMING (check one)

___ Good (does as well as possible with his/her personal characteristics)

X Usually well-groomed and clean, but not always.

___ Only moderately (or only at times) well-groomed and clean

___ Poorly groomed most of the time

Comment: Possibly due to economic problems in the home.

2. RELATIONSHIPS TO OTHER STUDENTS (check one)

___ Quick to make friends with everyone

X Generally friendly, but sometimes hesitant

___ Not unfriendly, but not much interested in other students

___ Definitely hostile, withdrawn or shy

Comment: Deafness seems to severely restrict Brad's relationships with other students.

3. ACCEPTANCE BY OTHER STUDENTS (circle the number which would best place this student between the given extremes)

Is always sought out as a leader or friend	1 2 3 [✓ 4] 5	Is always rejected or avoided by this group

Comment: Communication problems and other effects of his deafness seem to cause him to be a "loner"

4. RELATION TO AUTHORITY (check one)

___ Over-compliant, "bows and scrapes" too much

___ Good, no problem

X Somewhat resistant or evasive

___ Openly rebellious

Comment: Seems to act up to a limited extent to gain attention from teacher

5. DIRECTIONS AND INSTRUCTIONS (check one)

___ Impossible for him/her to understand instructions in classroom

___ Understands only after repeated instructions and directions

X Understands simple instructions, difficulty in complex instructions

___ Understands at or near normal rate

Comment: Has difficulty with written and oral instructions - requires assistance of interpretor for the deaf and modifications to materials presented in class.

6. RULES OF GENERAL BEHAVIOR (circle number which best places this person between given extremes)

ATTITUDE:

Believes in the rules 1 2 3 [✓ 4] 5 Does not accept rules

UNDERSTANDING:

Understands the rules easily 1 2 3 [✓ 4] 5 Unable to understand

SELF-CONTROL:

Follows all the rules 1 2 [✓ 3] 4 5 Breaks all the rules

Comment: Has difficulty in understanding reasons for having rules and concern for peers

7. PERSISTENCE IN CARRYING OUT ASSIGNED TASKS (check one)

___ Over-persistent, can't seem to turn self off or know when done

___ Normally persistent, keeps at a thing until finished

X Gives up easily

___ Can't seem to stick to a task at all

Comment:

8. ESTIMATE the grade level at which the student can actually do successfu work on a day-to-day basis in:

Reading (mechanics of reading as a skill)	3.0
Reading (comprehension of what he/she can read)	3.1
Applied Arithmetic	5.8
Social Studies	8.0

Comment: Has had considerable difficulty with studies due to reading problems

9. REMARKS:

Bradley is usually a pleasant enough student, but his deafness seems to get the best of him at times. Limited development of basic reading and math skills has been brought about by the hearing problem, further adding to the difficulties he has in developing relationships with fellow students and keeping up with studies.

CASE STUDY B

ANECDOTAL RECORD/TEACHER OBSERVATIONS

RE: Allen, Bradley

Teacher: T. Blake

Course: English

Situation: Brad is hearing impaired and requires an interpretor for the deaf in his classes. He is mainstreamed with non-handicapped students for this class.

Observations: Bradley is doing adequately in the performance requirements of the course, especially due to the aid of his interpretor. However, Bradley has a great deal of difficulty in communicating and getting along with other students when the interpretor is not present. Many times, it has appeared that he would rather talk with his interpretor than other individuals. Other class members initially attempted to include him in their extra-curricular activites, but this has subsided.

Remarks: I have talked with Brad and his interpretor about this problem. Although he seemed to understand the concern, no visible attempt to correct it has been observed on his part. The interpretor has continued to reinforce Brad's improvement of behavior in this area.

CASE STUDY B

ATTENDANCE RECORD

RE: Allen, Bradley R.

School: Middletown High School (Minnesota)

Year	Semester	Days Missed	Remarks:
1977-78	I	7/90	Truant 4 days in a row
	II	5/93	
1976-77	I	3/89	
	II	3/94	
1975-76	I	6/90	
	II	4/93	

CASE STUDY B

READING/MATH TESTING

Student: Allen, Bradley R. Date: 2 - 17 - 78

School: Middletown H.S. Tester: BHL

Achievement Testing: Wide Range Achievement Test (WRAT) - Level II

Test (Date)	Scores	Norms (C.A. 18 yrs)
2 - 17 - 78 Reading:	Raw - 13 Grade: 4.6	%ile: Below 1% Stand.: 50
Spelling:	Raw -25 Grade:3.2	%ile:25% Stand.: 90
Arith.:	Raw - 18 Grade:5.7	%ile: 9% Stand.: 80

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Gordon C. Krantz

VOCATIONAL BEHAVIORS SCALE
(Experimental)
1977 Edition

Client ALLEN, BRADLEY

Rater GBA

Date 12-10-77

CASE STUDY B

Behavior Dimensions (See Manual)	Inadequate Level	Marginal or Sheltered Level	Competitive Level	
OCCUPATIONAL OBJECTIVE BEHAVIORS				
A.1 Job Objective: Orientation	resists occupation and task assignments	passively accepts assignment to tasks	orients himself toward the world of work ✓	has a specific vocational goal
A.2 Job Objective: Appropriateness of Goal	rejects the appropriate preliminary steps or has grossly inappropriate goal	accepts the appropriate goal only as a concession	accepts an opportunity; may be simply uncritical and will take whatever job he can get ✓	a. is able to do type of work he wants b. is willing to do all important elements of job c. type of work he wants is available
JOB-GETTING BEHAVIORS				
B.1 Initiative	needs but refuses help in getting job	resists help	✓ accepts or effectively secures help in getting a job	
B.2a Interview Behaviors: Assets		impression even with help is that he is poorly qualified	✓ cooperates with presentation of his assets made on his behalf	
B.2b Interview Behaviors: Accounting for Problems		calls attention to problems, as in "You wouldn't want me because..."	cooperates with explanation of his problems made on his behalf ✓	
B.2c Interview Behaviors: Mannerisms	does seriously distracting, annoying, or offensive things during interview	has some distracting or annoying behaviors	✓ has no serious mannerisms that call attention to him or annoy potential employer	

B.2d	Interview Behaviors: Enthusiasm	refuses to go to job interviews or avoids tasks assignments	says or demonstrates that he is not interested in working	gives passive assent when asked if he wants to work ✓

JOB-KEEPING BEHAVIORS

C.1	Attendance		more then 12 absences per calendar year	less than 12 absences per year ✓
C.2	Punctuality	chronically and obviously late	misses being on time more than 12 times per year	misses being on time less than 12 times per year ✓
C.3a	Co-Workers: Acceptance by	co-workers refuse to be near him	co-workers are irritated with or distracted by him	co-workers at least passively accept him ✓
C.3b	Co-Workers: Victimization by	co-workers and he are sometimes involved in physical combat	co-workers abuse or victimize him (ex: send him on food errands)	if co-workers react to or notice his handicap at all, it is in a socially acceptable way ✓
C.4a	Supervision: Acceptance of	refuses to "take orders"	supervisor feels some grudging or client shows "fawning" behavior	supervisor does not report feeling resisted ✓
C.4b	Supervision: Amount of	must be watched or attended to constantly	requires special watching and sustained instruction or supervisor feels intruded upon	consumes only ordinary amount of supervisory attention ✓
C.5a	Work: Stationing at	persistently leaves work station	occasionally leaves work station at unauthorized times ✓	consistently remains at work station without reminder
C.5b	Work: Production	production speed is less than 1/4 of average worker's	is within lowest 1/3 of normal workers' production speed range	is within upper 2/3 of normal workers' productivity range ✓
C.5c	Work: Persistence	gives up and quits trying before normal end of work period	persists in his work but makes a show of the effort	sustains his work effort normally ✓

C.6	Quality Standards: Recognition of	does not recognoize or does not acknowledge that there are quality standards	recognizes that there are standards but resists their demand upon him or perceives quality poorly	recognizes that there are quality standards and accepts them as reasonable ✓
D.1	Safety		carries out job actions which appear dangerous or sustains many minor, or a few major, job injuries	does not appear to be doing dangerous things, and maintains a record of few or no injuries on the job ✓
		VOCATIONALLY-COUPLED BEHAVIORS		
E.1	Social Living: Leisure	no, or very limited, constructive use of leisure	uses only special resources such as recreation for the retarded	uses normal range of community recreation ✓
E.2	Social Living: Money Management	spends more money than he has unless expenditures are controlled	spends more than he has unless given personal guidance	spends no more money than he has ✓
E.3	Social Living: Legal Management	removed from community for correction or custody	legal affairs intrude on the job or in school	legal affairs not evident on job; no garnishments, no absences for personal suits, no legal claims against employer, etc. ✓
F.1	Community: Housing	does not have reliable place to live	moves outside his communting range, or misses work due to housing instability	maintains stable housing in commuting range of employment ✓
F.2	Community: Medical Care		does not have ongoing or reliable medical care contact	has personal physician or makes appropriate use of public or company medical services ✓
F.3	Community: Mobility	homebound unless personally transported	has single-use mobility (ex: goes from home to school or job as is not mobile over normal community range)	uses normal community or personal transportation ✓

G.1	Personal: Family	copes with family problems too poorly to attend school or work regularly	family and marital problems displayed on the job to extent that they distract him or co-workers	family and marital problems not evident on the job, or it is evident that he is coping with ✓ them
G.2	Personal: Stability	acts out an internal irreality, or swings widely in overt mood, as is otherwise very disruptive of a work group	calls attention to his personal problems, but gives attention to the task at hand	keeps misinterpretations of reality, if he has them, to himself; focuses his energy on the job; is predictable in behavior ✓ under ordinary conditions
?		?	?	?
?		?	?	?

Remarks:

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Gordon C. Krantz, Ph.D.
Educational Consultant
5209 Woodlawn Blvd
Minneapolis, MN 55417
Ph: (612) 724-3498

CASE STUDY B

SOCIAL WORKER REPORT

RE: Allen, Bradley

Family History: Mr. Allen is single and presently lives with his parents. He is an only child, although his mother did report the death of an older sibling at birth. From previous information and that supplied through the parents, it appears that his father is presently unemployed due to a long-term strike at the plant where he works as a machinist and his mother is working part-time as a waitress. Additional financial support presently comes from unemployment insurance and county welfare. Bradley also is eligible for DVR support due to his handicap, but has not been actively involved with the agency to this point.

Current Situation: Bradley is presently interested in the auto mechanics program at District 6 AVTI, which will require his moving away from home for the first time. This will place a heavy financial burden on the family, which they presently cannot bear. Further, it appears that Bradley has little involvement with other persons his age or in community or church groups. He appears to be strongly dependent on his parents, and his parents appear to be extremely protective of him. Some difficulties have already arose concerning his moving away from the home and his parents.

Summary and Recommendation: Bradley needs specific skill training to further his chances for participation in the world of work and in society. His moving away from his parents could serve as an excellent opportunity for him to develop social and independent living skills, not fully developed at this point. Involvement of the DVR counselor, welfare, and AVTI staff is of high priority in meeting the needs of this individual.

Sincerely,

H. Bridgeman, M.S.W.

CASE STUDY B

ECONOMIC STATUS

RE: Allen, Bradley R.

Current Situation: Bradley and his parents are presently dependent upon welfare, unemployment compensation and part-time wages for their support. Bradley is eligible for DVR services and potentially for a BEOG grant. He and his family have not presently investigated these resources. Heavy burden will be placed on the family and the student, due to his having to move away from home during his participation in the auto mechanics program at District 6 AVTI.

Summary and Recommendations: Bradley and his parents presently meet the low-income requirements for many financial aid programs. It is recommended that the family pursue financial assistance through BEOG, DVR and welfare, or others, at the earliest possible time. They have not applied for these programs at this time.

Sincerely,

J. Dayton, Vocational Counselor
Financial Aids Officer

WORK HISTORY

RE: Allen, Bradley R.

Contact with the applicants previous high school and rehabilitation counselor indicate that he has had no previous employment or OJT experiences. Discussion with student confirms this.

Sincerely,

J. Armbruster
Vocational Counselor

CASE STUDY B

OJT PERFORMANCE REPORT

RE: Allen, Bradley R.

Contact with previous high school and VR counselor indicate no previous OJT experiences.

Sincerely,

J. Dayton, Vocational Counselor

VOCATIONAL EVALUATION REPORT

RE: Allen, Bradley

I. General Description:

Initial impressions were those of a somewhat isolated, anxious individual who was limited in developing relationships because of his deafness and related communications problems. Bradley was able to complete application forms with the assistance of his interpretor. Daily attire was appropriate for the work situation with no problems being evident in grooming or hygiene.

During the evaluation, Bradley was cooperative and somewhat motivated toward work assignments, especially those involving manipulative activities. He resisted attempts to assign tasks which required reading or writing skills, as well as those demanding more cognitive than psycho-motor activity. He has no actual work experience in paid or non-paid employment. He adjusted adequately to the evaluation setting, but had limited interaction with other clientele and supervisors. Throughout the evaluation, Bradley stated interest in the auto mechanics program at District 6 AVTI.

II. Recommendations:

The following vocational plans were developed in view of the evaluation results:

A. Immediate:

1. Enrollment in the auto mechanics program at District 6 AVTI.
2. Find suitable housing and transportation.
3. Involve Bradley in social activities with fellow students and in the community.

B. Long Term:

1. Vocational counseling and job seeking skills.
2. Social and independent living skills.
3. Aid in selecting, seeking and obtaining an occupation.
4. Placement in full-time employment.

Rationale: Bradley has strong interest in the auto mechanics occupation and appears to have the basic qualities required for this field. Additional efforts to increase his social competence and in establishing his independent functioning is of utmost priority.

Sincerely,

J. P. Allen
Evaluator

CASE NOTES - INDIVIDUAL INTERVIEW

RE: Allen, Bradley

Bradley, a caucasian male, came in today at the suggestion of the vocational guidance counselor of the AVTI. All forms necessary for application for the auto mechanics program have been completed, although he and his parents have yet to complete forms for BEOG and other grants. The student needs financial assistance to enable participation, as well as special housing and transportation services. Further, special educational supportive services may be required due to his communications and social difficulties.

Bradley stated a strong interest in enrolling in the auto mechanics program. He has no previous work experience but this program has been mentioned as a viable alternative by his DVR counselor and parents. Most communications with Bradley were while the interpretor was present. Some difficulty in understanding the financial and enrollment requirements for the program were apparent even with the aid of the interpretor.

Bradley, his parents, interpretor, DVR counselor and AVTI staff will be meeting after the first week of his enrollment to further discuss and schedule services that will enable him to participate in the program and later employment.

CASE NOTES - STAFF CONFERENCE NOTES

RE: Allen, Bradley

No staffing has been held with Bradley, his parents, VR counselor or AVTI staff at this time. A conference has been tentatively scheduled for the end of the first week of the term, to further specify required services and arrangements that are necessary. Potential service needs, both vocational and educational, will be brought up by the Special Needs department at this conference.

APPENDIX D

DATA COLLECTION QUESTIONNAIRE

VOCATIONAL SPECIAL NEEDS DIAGNOSIS AND PRESCRIPTION STUDY

University of Minnesota
Department of Vocational
and Technical Education

Minnesota Department of Education
Division of Vocational-
Technical Education

(Please Print)

INSTITUTION: ____________________ ZIP CODE: ________________

INTRODUCTION: You are being asked to participate in a project sponsored by the Minnesota Department of Education, Division of Vocational-Technical Education, and conducted as a doctoral research study through the University of Minnesota, Department of Vocational and Technical Education. Your participation is both needed and will be deeply appreciated.

The focus of this project is on student program management and the procedures used attempt to simulate actual individualized education program planning for handicapped students. Through this simulation, we are trying to gain additional insights into how post-secondary vocational special needs personnel: (1) diagnose the needs of students with handicaps; and (2) determine which programs and services would be most appropriate in meeting these needs. Background information on participants and the institutions in which they are employed will also be collected to aid in understanding the situations under which these activities take place with actual students having handicaps. This information will be useful to the State Department of Education, universities and colleges, program administrators, and special needs personnel in future program development, training, licensure, and planning activities. The ultimate goal of the process being the provision of access for handicapped individuals to appropriate and quality educational and vocational services.

Your participation in this project will require that you complete several tasks. These tasks primarily focus on completion of a questionnaire composed of four sections. The following discussion relates to each of the sections of the questionnaire and the questions which will be asked of you in each.

The first section is designed to gather information about the types(s) of diagnostic information and prescriptive services or modifications, which you would use with students having a number of specific handicaps and needs. Categories of diagnostic and prescriptive services will be used to aid in data collection and analysis, as well as in the development of a standardized format that may be implemented in future program operations. Separate case study information will be provided for your use and discussed more fully once you have begun to work on Section I. Certain reference materials will also be available for your use in completing the case studies. Your proctor will provide these for your use in a location specified prior to the beginning of the data collection activities.

The second section is designed to gather information about the characteristics of the group of individuals who are providing special needs support services to students with handicapping or disadvantaging conditions, in Minnesota's Area Vocational-Technical Institutes(AVTI's).

The third section is designed to gather more specific information about the academic preparation and work experience(s) you have had, that relate to diagnosis and prescription for handicapped students.

The fourth section is designed to gather information on the institution which employs you, specifically the perceived availability of diagnostic and prescriptive services useful in meeting the educational and vocational needs of students with handicaps.

The total time commitment for these tasks will be no more than four hours. If you should have any questions at this time, please address them to the proctor. During the time allocated to completion of these tasks, you are asked not to discuss the study and its content with anyone.

Upon completion of the data collection activity, a debriefing session of approximately twenty minutes will be held to deal with your concerns and comments. Copies of the summary of research findings will be sent to you upon completion of data analysis. Completion of reimbursement forms will take place at that time also.

Should you agree to participate in this project, signify your consent on the attached (blue) "Informed Consent and Release Form." Be certain that you read over the form completely before signing it. If you decide to participate in the study, hand the signed form to the proctor. If you decide that you do not wish to participate in the study, please hand in all your materials to the proctor prior to your departure. Thank you for your interest in the project. Non-participants may request copies of research findings from the Minnesota Department of Education, Division of Vocational-Technical Education. They will be forwarded as they become available for dissemination.

Participants in the project should now continue to the next page for further instructions.

SECTION I -- SIMULATED STUDENT CASE STUDIES

Case Review Instructions;

Your objectives with each of the following case studies are: (1) to determine which types of diagnostic information you would use to determine the specific needs of the student involved; and (2) to develop an initial individualized education program (IEP) for the student based upon this information. The individualized education program will consist of: determining the type of vocational education program the student is to be placed in; what type of program modification(s) are needed, if necessary; and the type(s) of special educational support services that might be provided to meet specific needs. The primary emphasis of this study is on determining the specific needs of students and prescribing appropriate treatment(s) for meeting those needs. You will only be dealing with newly entering students, desiring to enroll in a post-secondary vocational program that has been specified. Likewise, you will be dealing with the programming of students who have a handicapping condition, not those with only academic or economic disadvantagements.

You must complete the case study included in Packet #1 before starting that included in Packet #2. Also, you must not go back and make corrections on previous sections or cases, once you have started another section or case.

Reference materials which may help you in interpreting information included as part of the various diagnostic data types are available for your use. The proctor will let you know where they are located.

The materials for each case study are enclosed in the labeled packets in front of you. Complete Packet #1 before working on Packet #2. Upon completion, return all materials to the appropriate packet. The materials included in each packet are labeled either Case Study A or Case Study B. Circle the appropriate identifier for the case study on the first work sheet for each case, included as part of this questionnaire. Upon opening each packet, you will find the following information for each case:

1. Student application for vocational-technical education program (with referral slips, philosophy of school, and program curriculum information).

2. Medical Reports - one general and nine specialist reports;
3. Psychological Information - five types;
4. Educational Information - five types;
5. Social/Independent Living Information - three types;
6. Work Experience Information - two types;
7. Vocational Evaluation Information - one type; and
8. Casenote Information - two types.

A total of twenty-nine (29) separate pieces of information will be provided for your use with each case.

You will find that the Student Application, referral slips, philosophy of the school and vocational program curriculum information will always be used with each case, primarily as an introduction to the basic status of the student. It is the only information that is not stapled together. The remaining information is sealed and labeled by the type of diagnostic information that it contains. The information is presented in the same order as they are listed on this form, under the heading of "Student Data Sheet," which appears on the next several pages as Part I of Section I.

You are to process only one document at a time and must follow the steps on the following page as you work on the case study. An overhead will be projected on the screen for use during actual processing of the case materials.

Step 1. Read the student application form.

Step 2. Decide whether or not you have enough information to diagnose student need(s) and develop an appropriate individualized education program. If you have enough information proceed to Step 8.

Step 3. The Student Data Sheet (Part I of each Case Study) that follows on this questionnaire, lists the diagnostic information types that are available for the student. From the list, select the one that you now feel would be most useful to you in determining the student's need(s).

Step 4. Record your Order of Selection in the blank after the document's name on the Student Data Sheet. The first document selected will be "1", the seond "2", etc.

Step 5. Pull the selected document from the packet. Open it and read over the information contained. You may mark any notes that you want on the document.

Step 6. After reviewing the contents of the report, set the report aside. Do not reinsert the document into the packet at this time.

Step 7. Repeat Steps 2 through 7 until you feel that you have sufficient information to make decisions regarding an initial individualized education program (IEP) for the student, or until all of the available documents have been selected.

Step 8. If you decide that of the available information, you would require other types which are not listed, insert the names of these diagnostic information types under the "Other" category on the Student Data Sheet. Also, list the order which you would have for these types of information as you did with the previous reports.

Step 9. Once you feel that you have enough information to develop an initial individualized education program (IEP) for the student, or have used all the information included in the packet, complete all items in Parts II and III for each Case Study.

Step 10. After you have completed all sections (Parts I - III) for the first case study, return all materials to Packet #1. Then, complete the case study in Packet #2 in the same manner. Upon completion of both cases, set both packets of case materials aside. Take a five minute break, being careful not to discuss the content of this project with anyone. Continue completion of Sections II through IV of this questionnaire when you return from your break.

WHILE COMPLETING THE SIMULATED CASE STUDIES, REFER TO THESE STEPS AS FREQUENTLY AS NECESSARY. THEY ARE LISTED ON THE SCREEN

IF YOU HAVE ANY QUESTIONS REGARDING THESE INSTRUCTIONS, ASK THEM NOW. OTHERWISE, PROCEED TO PACKET 1 AND BEGIN TO PROCESS YOUR CASE. MAKE CERTAIN THAT YOU KNOW WHAT YOU ARE SUPPOSE TO DO BEFORE STARTING.

(Circle One)

CASE STUDY: A B

Part I - - Diagnostic Data Usage

As you review this case study to determine handicap, need(s) and initial individualized education program (IEP), be sure that you remember the following:

- Follow the 10 steps in the instructions. They are listed on the overhead for your use during the processing of the case studies;
- Select and use only one document at a time;
- Record your Order of Selection of each document before you read its contents;
- If you should enter one or more types of diagnostic data in the "Other" category, also indicate the order in which you would select it.

CASE STUDY: A B

STUDENT DATA SHEET

Categories of Diagnostic Data	Documentation	Order of Selection
Medical	Cardiovascular	___
	Gastro-Intestinal	___
	General Medical	___
	Neurological	___
	Orthopedic	___
	Psychiatric	___
	Respiratory	___
	Speech and Auditory	___
	Urological	___
	Visual	___
Psychological	Intelligence Testing	___
	Interest Inventories	___
	Aptitude Testing	___
	Personality Profile	___
	Perceptual-Motor Testing	___
Educational	Course Grade Report	___
	Performance Report	___
	Anecdotal Record/Teacher Observations	___
	Attendance Record	___
	Achievement Testing (reading and math)	___
Social/Independent Living	Behavior Rating Scale	___
	Social Worker Report	___
	Economic Status Report	___

(Continued on Next Page)

CASE STUDY (continued)

STUDENT DATA SHEET

Categories of Diagnostic Data	Documentation	Order of Selection
Work Experience	Work History	___
	On-the-job Training Report	___
Vocational Evaluation	Vocational Evaluation Report	___
Casenotes	Individual Interview	___
	Staff Conference Notes	___
Other (Specify)	___	___
	___	___
	___	___
	___	___
	___	___

Part II - - Initial Individualized Education Program (IEP).

Based upon the information which you have reviewed, which type of vocational program, what modifications to that program, and what type(s) of special educational support services would you recommend to meet the needs identified?

Place a check (✓) after each program, modification and service type that you would recommend. Additional services which you feel may be necessary in the plan and which are not listed, may be entered under the "Other" category.

You must select a program type (e.g. regular, special, modified or pre-vocational) for the case study. However, you are not required to select any of the program modifications or services that are listed. Select modifications and services as you feel they fit the individual needs of the student whose initial individualized education program you are developing.

INDIVIDUALIZED EDUCATION PROGRAM (IEP)

Program/ Modification/ Service Type		✓ Recommended
Program Type	*(Select One)*	
You Must Select One of These	Regular Class Placement	___
	Special Class Placement	___
	Modified Program *(See next section)*	___
	Pre-Vocational Program	___
Program Modifications	Scheduling/Length of Program *(i.e. open entry/open exit)*	___
Select as Necessary for Any Type of Program - Required for Modified Program	Curriculum Modification *(e.g. braille handouts)*	___
	Equipment Modifications *(e.g. special controls)*	___
	Facility Modifications *(e.g. ramps; railings)*	___
	Supportive Audio-Visual Aids	___

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INDIVIDUALIZED EDUCATION PROGRAM (IEP)

Program/ Modification/ Service Type		✓ Recommended
Special Educational Support Services	Remedial Instruction	
	Mathematics	___
	Reading	___
	Technical Tutoring	___
	Bi-Lingual Instruction	___
	Socialization Skills	___
	Vocational Guidance	
	Career Guidance	___
	Career Exploration	___
These Are All Elective Services	Counseling-Testing	
	Personal-Family Counseling	___
	Testing-Assessment	___
	Referral to Another Agency	___
	Employability Skills Training	
	Job Seeking/Job Keeping Skills	___
	Placement Assistance	___
	Communication Skills	
	Writing Skills	___
	Language Instruction	___
	Speech/Language Therapy	___
	Sign Language	___
	Transportation	
	Mobility Training	___
	Van/Adaptive Vehicle	___
	Public Conveyance	___
	Special Devices for Student *(e.g. hearing aid; TTY for deaf) (Specify):* ______________	___
	Reader/Interpretor Services	
	Interpretor for Deaf	___

(Continued on Next Page)

INDIVIDUALIZED EDUCATION PROGRAM (IEP)

Program/ Modification/ Service Type		✓ Recommended
Special Educational Support Services	Reader/Interpretor Services (Cont.)	
	Reader for the Blind	____
	Interpretor/Bi-Lingual Aid	____
	Direct Educational Support Services	
	Tool Purchase	____
These Are All Elective Services	Tuition Waiver/Financial Aids	____
	Payments for Job Training Sites	____
	Non-Direct Educational Support Services	
	Maintenance (food, clothing, shelter)	____
	Prosthetic Devices (e.g. artificial limb, brace)	____
	Medical-Dental Assistance	____
	Adaptive Home Equipment	____
	Aide/Companion (e.g. guide dog: live-in nurse)	____
	Other Supportive Services *(Specify)*	
	____________________	____
	____________________	____
	____________________	____
	____________________	____
	____________________	____

Part III -- Case Evaluation.

Complete each of the following items pertaining to this case study. Use a check mark (✓) to indicate your perceptions on the following questions.

A. What would be the probability of success for this student in the vocational program listed, assuming that the IEP you have just developed was implemented?

1 = No Chance, 5 = Absolute Certainty

1	2	3	4	5
☐	☐	☐	☐	☐

B. Relative to the students you normally work with, how difficult would this case be?

1 = Much Less Difficult, 3 = Same, 5 = Much More Difficult

1	2	3	4	5
☐	☐	☐	☐	☐

C. How confident are you in your determination of student needs and IEP with this case?

1 = No Confidence, 3 = Uncertain, 5 = Absolute Confidence

1	2	3	4	5
☐	☐	☐	☐	☐

D. Out of all the other post-secondary special needs personnel in Minnesota, approximately what percentage would have reached the same decision that you did in the determination of the individualized education program (IEP) for this case? *(Specify percentage - e.g. If 45 out of 100 agree with you, insert 45%)*

_____ %

* * * * *

PLACE ALL MATERIALS FOR THIS CASE STUDY
INTO THE APPROPRIATE PACKET AND CONTINUE

* * * * *

(Circle One)

CASE STUDY: A   B

Part I - - Diagnostic Data Usage

As you review this case study to determine handicap, need(s) and initial individualized education program (IEP), be sure that you remember the following:

- Follow the 10 steps in the instructions. They are listed on the overhead for your use during the processing of the case studies;
- Select and use only one document at a time;
- Record your Order of Selection of each document before you read its contents;
- If you should enter one or more types of diagnostic data in the "Other" category, also indicate the order in which you would select it.

CASE STUDY: A B

STUDENT DATA SHEET

Categories of Diagnostic Data	Documentation	Order of Selection
Medical	Cardiovascular	____
	Gastro-Intestinal	____
	General Medical	____
	Neurological	____
	Orthopedic	____
	Psychiatric	____
	Respiratory	____
	Speech and Auditory	____
	Urological	____
	Visual	____
Psychological	Intelligence Testing	____
	Interest Inventories	____
	Aptitude Testing	____
	Personality Profile	____
	Perceptual-Motor Testing	____
Educational	Course Grade Report	____
	Performance Report	____
	Anecdotal Record/Teacher Observations	____
	Attendance Record	____
	Achievement Testing (reading and math)	____
Social/Independent Living	Behavior Rating Scale	____
	Social Worker Report	____
	Economic Status Report	____

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CASE STUDY (continued)

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STUDENT DATA SHEET

Categories of Diagnostic Data	Documentation	Order of Selection
Work Experience	Work History	___
	On-the-job Training Report	___
Vocational Evaluation	Vocational Evaluation Report	___
Casenotes	Individual Interview	___
	Staff Conference Notes	___
Other (Specify)	___________________	___
	___________________	___
	___________________	___
	___________________	___
	___________________	___

Part II - - Initial Individualized Education Program (IEP).

Based upon the information which you have reviewed, which type of vocational program, what modifications to that program, and what type(s) of special educational support services would you recommend to meet the needs identified?

Place a check (✓) after each program, modification and service type that you would recommend. Additional services which you feel may be necessary in the plan and which are not listed, may be entered under the "Other" category.

You must select a program type (e.g. regular, special, modified or pre-vocational) for the case study. However, you are not required to select any of the program modifications or services that are listed. Select modifications and services as you feel they fit the individual needs of the student whose initial individualized education program you are developing.

INDIVIDUALIZED EDUCATION PROGRAM (IEP)

Program/ Modification/ Service Type		✓ Recommended
Program Type You Must Select One of These	*(Select One)*	
	Regular Class Placement	___
	Special Class Placement	___
	Modified Program *(See next section)*	___
	Pre-Vocational Program	___
Program Modifications Select as Necessary for Any Type of Program - Required for Modified Program	Scheduling/Length of Program *(i.e. open entry/open exit)*	___
	Curriculum Modification *(e.g. braille handouts)*	___
	Equipment Modifications *(e.g. special controls)*	___
	Facility Modifications *(e.g. ramps; railings)*	___
	Supportive Audio-Visual Aids	___

(Continued on Next Page)

CASE STUDY (continued)

INDIVIDUALIZED EDUCATION PROGRAM (IEP)

Program/ Modification/ Service Type		√ Recommended
Special Educational Support Services	**Remedial Instruction**	
	Mathematics	___
	Reading	___
	Technical Tutoring	___
	Bi-Lingual Instruction	___
	Socialization Skills	___
	Vocational Guidance	
	Career Guidance	___
	Career Exploration	___
These Are All Elective Services	**Counseling-Testing**	
	Personal-Family Counseling	___
	Testing-Assessment	___
	Referral to Another Agency	___
	Employability Skills Training	
	Job Seeking/Job Keeping Skills	___
	Placement Assistance	___
	Communication Skills	
	Writing Skills	___
	Language Instruction	___
	Speech/Language Therapy	___
	Sign Language	___
	Transportation	
	Mobility Training	___
	Van/Adaptive Vehicle	___
	Public Conveyance	___
	Special Devices for Student *(e.g. hearing aid; TTY for deaf)* *(Specify):* ______________________ ______________________________	___
	Reader/Interpretor Services	
	Interpretor for Deaf	___

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INDIVIDUALIZED EDUCATION PROGRAM (IEP)

Program/ Modification/ Service Type		✓ Recommended
Special Educational Support Services	Reader/Interpretor Services (Cont.)	
	Reader for the Blind	___
	Interpretor/Bi-Lingual Aid	___
	Direct Educational Support Services	
	Tool Purchase	___
These Are All Elective Services	Tuition Waiver/Financial Aids	___
	Payments for Job Training Sites	___
	Non-Direct Educational Support Services	
	Maintenance (food, clothing, shelter)	___
	Prosthetic Devices (e.g. artificial limb, brace)	___
	Medical-Dental Assistance	___
	Adaptive Home Equipment	___
	Aide/Companion (e.g. guide dog; live-in nurse)	___
	Other Supportive Services *(Specify)*	
	______________________	___
	______________________	___
	______________________	___
	______________________	___
	______________________	___

Part III -- Case Evaluation.

Complete each of the following items pertaining to this case study. Use a check mark (✓) to indicate your perceptions on the following questions.

A. What would be the probability of success for this student in the vocational program listed, assuming that the IEP you have just developed was implemented?

1 = No Chance, 5 = Absolute Certainty

1	2	3	4	5
☐	☐	☐	☐	☐

B. Relative to the students you normally work with, how difficult would this case be?

1 = Much Less Difficult, 3 = Same, 5 = Much More Difficult

1	2	3	4	5
☐	☐	☐	☐	☐

C. How confident are you in your determination of student needs and IEP with this case?

1 = No Confidence, 3 = Uncertain, 5 = Absolute Confidence

1	2	3	4	5
☐	☐	☐	☐	☐

D. Out of all the other post-secondary special needs personnel in Minnesota, approximately what percentage would have reached the same decision that you did in the determination of the individualized education program (IEP) for this case? *(Specify percentage - e.g. If 45 out of 100 agree with you, insert 45%)*

_____ %

* * * * *

PLACE ALL MATERIALS FOR THIS CASE STUDY
INTO THE APPROPRIATE PACKET AND CONTINUE

* * * * *

AFTER YOU HAVE PLACED ALL THE CASE STUDY MATERIALS IN THE APPROPRIATE PACKET, YOU MAY TAKE A FIVE MINUTE BREAK OR CONTINUE.

IF YOU ELECT TO TAKE A BREAK, REMEMBER NOT TO DISCUSS THE STUDY WITH ANYONE. QUESTIONS AND COMMENTS REGARDING IT WILL BE DISCUSSED AT THE COMPLETION OF THE DATA COLLECTION.

IN EITHER CASE, MAKE SURE THAT YOU COMPLETE THE FOLLOWING SECTIONS OF THE QUESTIONNAIRE AS ACCURATELY AND COMPLETELY AS POSSIBLE.

SECTION II -- YOUR BACKGROUND

This section attempts to gather information about you and other vocational special needs personnel who are providing services to handicapped students in Minnesota Area Vocational-Technical Institutes (AVTI's). Please answer each question as completely and accurately as you possibly can.

A. Which licensure category best reflects your present job title? *(Check One)*

Special Needs Supervisor ___
Support Services Manager ___
Vocational Instructor - Evaluator ___
Other *(Specify)* ________________ ___

B. What portion of your job duties are directly related to diagnosing student needs and determining the most appropriate services and program modifications to implement for meeting those needs? *(Check One)*

0 - 10 % ___
11 - 20 % ___
21 - 30 % ___
31 - 40 % ___
41 - 50 % ___
51 - 60 % ___
61 - 70 % ___
71 - 80 % ___
81 - 90 % ___
91 - 100 % ___

C. What type of educational licenses do you presently hold? *(List both Standard and Vocational Licenses that are presently valid in the State of Minnesota)*

Vocational ________________
________________/
Special ________________
________________/
Standard ________________
________________/

D. How old are you? *(Check One)* Under 25 ___ 26-34___ 35-44___ 45+___

E. What is your sex? Male ___ Female ___

F. How many years have you taught? *(Check One)*

1 - 4 ___ 5 - 9 ___ 10 - 14 ___ Over 14 ___

G. What degree's or certificate's do you presently hold and in which fields are they? *(Check Level and List Major Field for All That Apply)*

Degree/Certificate		Major Field
Vocational Certificate	___	________________________
Associate's Degree	___	________________________
Bachelor's Degree	___	________________________
Master's Degree	___	________________________
Specialist's Degree	___	________________________
Doctorate	___	________________________
Other *(Specify)* ________________	___	________________________

SECTION III -- ACADEMIC BACKGROUND AND WORK EXPERIENCES

This section attempts to gather information about you and other vocational special needs personnel, in terms of your academic preparation and work experiences. Specifically, we are attempting to gather information about the training and experiences that you have had with various handicapping conditions, diagnostic-assessment methods, and prescriptive-remediation techniques. Please answer each question as completely and accurately as you possibly can.

A. In which of the following handicapping conditions have you had formal academic preparation? *(Check All That Apply)*

Mental Retardation ___
Specific Learning Disabilities ___
Emotional Disturbance ___
Orthopedic Impairments ___
Speech Impairments ___
Deafness/Hearing Impairments ___
Blindness/Visual Impairments ___
Chemical Dependency ___
Other Health Impairments (e.g. cerebral palsy, asthma) ___
Multiple Handicaps (e.g. blind-deaf) ___
Other *(Specify)* ________________________ ___

B. With which types of handicapping conditions have you had practical work experience(s)? *(Check All That Apply)*

Mental Retardation ____
Specific Learning Disabilities ____
Emotional Disturbances ____
Orthopedic Impairments ____
Speech Impairments ____
Deafness/Hearing Impairments ____
Blindness/Visual Impairments ____
Chemical Dependency ____
Other Health Impairments (e.g. cerebral palsy, asthma) ____
Multiple Handicaps (e.g. blind-deaf) ____
Other *(Specify)* ______________________________ ____

C. In which of the following diagnostic-assessment types have you had formal academic preparation which would enable you to use the information provided in the development of an individualized education program (IEP) or your present daily duties in diagnosis and prescription? *(Check All That Apply)*

Medical

Cardiovascular ____
Gastro-Intestinal ____
General Medical ____
Neurological ____
Orthopedic ____
Psychiatric ____
Respiratory ____
Speech and Auditory ____
Urological ____
Visual ____

Psychological

Intelligence Tests ____
Interest Inventories ____
Aptitude Tests ____
Personality Profiles ____
Perceptual - Motor Tests ____

(Continued on Next Page)

Educational

Course Grade Reports ___
Performance Reports ___
Anecdotal Records/Teacher Observations ___
Attendance Record ___
Achievement Testing (Reading and Math) ___

Social/Independent Living

Behavior Rating Scale ___
Social Worker Report ___
Economic Status Report ___

Work Experience

Work History ___
On-the-job Training Performance Report ___

Vocational Evaluation

Vocational Evaluation Report ___

Casenotes

Individual Interview ___
Staff Conference Notes ___

Other *(Specify)*

________________________ ___
________________________ ___
________________________ ___
________________________ ___
________________________ ___

D. In which of the following prescriptive programs, modifications or services have you had formal academic preparation that would enable you to prescribe it appropriately to meet individual student needs? *(Check All That Apply)*

Program Types

Regular Class Placement ___
Special Class Placement ___
Modified Programs ___
Pre-Vocational Programs ___

(Continued on Next Page)

Program Modifications

- Scheduling/Length of Program ____
- Curriculum Modification ____
- Equipment Modification ____
- Facility Modification ____
- Supportive Audio-Visual Materials ____

Special Educational Supportive Services

- Remedial Instruction:
  - Mathematics ____
  - Reading ____
  - Technical Tutoring ____
  - Bi-Lingual Instruction ____
  - Socialization Skills ____
- Vocational Guidance:
  - Career Guidance ____
  - Career Exploration ____
- Counseling-Testing:
  - Personal-Family Counseling ____
  - Testing-Assessment ____
  - Referral to Another Agency ____
- Employability Skills Training:
  - Job Seeking/Job Keeping Skills ____
  - Job Placement ____
- Communication Skills:
  - Writing Skills ____
  - Language Instruction ____
  - Speech/Language Therapy ____
  - Sign Language ____
- Transportation:
  - Mobility Training ____
  - Van/Adaptive Vehicle ____
  - Public Conveyance ____
- Special Devices for Students ____
- Reader/Interpretor Services:
  - Interpretor for the Deaf ____

(Continued on Next Page)

Reader/Interpretor Services (Cont.):
- Reader for the Blind ___
- Interpretor/Bi-lingual Aid ___

Direct Educational Support Services:
- Tool Purchase ___
- Tuition Waiver/Financial Aids ___
- Payments for Job Training Sites ___

Non-Direct Educational Support Services:
- Maintenance ___
- Prosthetic Devices ___
- Medical - Dental Assistance ___
- Adaptive Home Equipment ___
- Aide/Companion ___

Other Supportive Services: *(Specify)*

____________________ ___

____________________ ___

____________________ ___

____________________ ___

____________________ ___

E. If additional in-service education was available in diagnostic-assessment and prescriptive methods, which areas would be beneficial to you? Instruction may include development of knowledge of procedures and administrative regulations to obtain required services. *(Check All That You Have Need for Training In)*

None ___

Diagnostic-Assessment Methods

Medical - Cardiovascular ___
- Gastrointestinal ___
- General Medical ___
- Neurological ___
- Orthopedic ___
- Psychiatric ___
- Respiratory ___
- Speech/Auditory ___
- Urological ___

Prescriptive Methods

Regular Course Development ___

Special Course Development ___

Pre-Vocational Training ___

Program Modifications - Scheduling/Length ___
- Curriculum Modification ___
- Equipment Modification ___
- Facility Modification ___
- Supportive AV Materials ___

(Continued on Next Page)

Diagnostic-Assessment Methods

Medical - Visual ____

Psychological -

- Intelligence Testing ____
- Interest Inventories ____
- Aptitude Tests ____
- Personality Profiles ____
- Perceptual-Motor Tests ____

Educational -

- Course Grade Reports ____
- Performance Reports ____
- Anecdotal Records/ Teacher Observations ____
- Attendance Records ____
- Achievement Tests ____

Social/Independent Living-

- Behavior Rating Scales ____
- Social Worker Reports ____
- Economic Status Reports ____

Work Experience -

- Work History ____
- On-the-job Perf. Report ____

Vocational Evaluation Report ____

Casenotes -

- Individual Interview ____
- Staff Conference Note ____

Other: *(Specify)* ____

____

____

____

____

____

Prescriptive Methods

Remedial Instruction:

- Mathematics ____
- Reading ____
- Technical Tutoring ____
- Bi-lingual Instruct. ____
- Socialization Skills ____

Vocational Guidance-

- Career Guidance ____
- Career Exploration ____

Counseling-Testing -

- Personal/Family Counseling ____
- Testing-Assessment ____
- Referral to Agency ____

Employability Skills Training -

- Job Seeking/Keeping ____
- Job Placement ____

Communication Skills-

- Writing Skills ____
- Language Instruct. ____
- Speech/Lang. Therapy ____
- Sign Language ____

Transportation -

- Mobility Training ____
- Van/Adaptive Vehicle ____
- Public Conveyance ____

Special Devices ____

Reader/Interpretor Services -

- Interpretor for Deaf ____
- Reader for Blind ____
- Interpretor/Bi-Lingual Aid ____

Direct Ed. Support Services -

- Tool Purchase ____
- Tuition Waiver/ Financial Aids ____

(Continued on Next Page)

Payments for Job Training Sites ____

Non-Direct Ed. Supportive Services -

Maintenance ____

Prosthetic Devices ____

Medical-Dental Assistance ____

Adaptive Home Equipment ____

Aide/Companion ____

Other: *(Specify)* ____

____

____

____

____

____

SECTION IV -- CHARACTERISTICS OF YOUR EMPLOYMENT SETTING

This section attempts to gather information about the availability of diagnostic-assessment and prescriptive services at your place of employment and the types of case loads that you work with. Some of the resources may not be provided within your facility, but are available for your use in the surrounding community. Please answer each question as completely and accurately as you possibly can.

A. What is the typical setting from which the majority of your students come? *(Check One)*

Metropolitan ____ Suburban ____ Rural ____

B. What is the typical referral source for the handicapped students with which you work? *(Check Those Most Frequently Referring Students)*

Self/Family ____
High School ____
Program Instructor ____
Drug Rehab. Prog. ____
Vets. Admin. ____

Other AVTI ____
Insurance Co. ____
Social Security ____
Corrections ____
CETA ____

Welfare ____
Manpower Svcs. ____
Services for the Blind ____
Developmental Dis. Center ____

Other *(Specify)* ______________________ ____

C. What are the primary disabilities of the handicapped students with which you work? *(Check Only Those Most Predominant)*

None ____
Mental Retardation ____
Learning Disability ____
Emotional Disturbance ____
Chemical Dependency ____
Multiple Handicaps ____

Orthopedic Impairment ____
Speech Impairment ____
Deaf/Hearin Impairment ____
Blind/Visual Impairment ____
Other Health Impaired ____
Other *(Specify)* ____
____

D. How many students do you serve in your special needs role, for each of the following categories, on a regular and yearly basis? *(Specify Estimated Number of Individual Students Served)*

	Regular	Yearly
1. Total Special Needs Students Served *(Disadvantaged+Handicapped)*	____	____
2. Handicapped Students Only	____	____

E. How many students are enrolled in day programs at the post-secondary level within your Area Vocational-Technical Institute? *(Check One)*

249 or fewer ____
250 - 499 ____
500 - 749 ____
750 - 999 ____

1000 - 1499 ____
1500 - 1999 ____
2000 or more ____

F. Which of the following types of diagnostic-assessment and prescriptive services do you use or are available for use in meeting the educational and vocational needs of handicapped students? *(These May Be Available in the School or Community)*

Diagnostic-Assessment Methods
Medical-Cardiovascular ____
-Gastrointestinal ____
-General Medical ____
-Neurological ____
-Orthopedic ____

Prescriptive Methods
Special Programs ____
Modified Programs ____
Pre-Vocational Programs ____
Program Modifications-
Scheduling/Length ____

(Continued on Next Page)

Diagnostic-Assessment Methods

Medical - Psychiatric ____
- Respiratory ____
- Speech/Auditory ____
- Urological ____
- Visual ____

Psychological -
- Intelligence Test ____
- Interest Inventories ____
- Aptitude Tests ____
- Personality Profile ____
- Perceptual-Motor ____

Educational -
- Course Grade Reports ____
- Performance Reports ____
- Anecdotal Records/ Teacher Observations ____
- Attendance Records ____
- Achievement Tests ____

Social/Independent Living-Behavior Rating Scales ____
- Social Worker Reports ____
- Economic Status Reports ____

Work Experience -
- Work History ____
- On-The-Job Perf. Report ____

Vocational Evaluation
- Report ____

Prescriptive Methods

Program Modifications -
- Curriculum Modification ____
- Facility Modification ____
- Equipment Modification ____
- Supportive AV Materials ____

Supportive Services -
- Remedial Instruction:
  - Mathematics ____
  - Reading ____
  - Technical Tutoring ____
  - Bi-Lingual Instruction ____
  - Socialization Skills ____

Vocational Guidance -
- Career Guidance ____
- Career Exploration ____
- Counseling-Testing-Personal/Family Counseling ____
- Testing-Assessment ____
- Referral to Agency ____

Employability Skills Training -
- Job Seeking/Keeping ____
- Job Placement ____

Communication Skills-
- Writing Skills ____
- Language Instruct. ____

(Continued on Next Page)

Diagnostic-Assessment Methods

Casenotes -

Individual Interview ____

Staff Conference Note ____

Other: (*Specify*)

____

____

____

____

____

Prescriptive Methods

Communication Skills -

Speech/Lang. Therapy ____

Sign Language ____

Transportation -

Mobility Training ____

Van/Adaptive Vehicle ____

Public Conveyance ____

Special Devices ____

Reader/Interpretor Services -

Interpretor for Deaf ____

Reader for Blind ____

Interpretor/Bi-Lingual Aid ____

Direct Ed. Support Services -

Tool Purchase ____

Tuition Waiver/ Financial Aids ____

Payments for Job Training Sites ____

Non-Direct Ed. Supportive Services -

Maintenance ____

Prosthetic Devices ____

Medical-Dental Assistance ____

Adaptive Home Equipment ____

Aide/Companion ____

Other: (*Specify*) ____

____

____

G. Comments: Please feel free to make any additional comments concerning this project, special needs services, licensure requirements, and/or in-service/continuing education, which you feel will be of importance in improving the status of post-secondary vocational education for the student with special needs.

* * * * * * * * * *

PLEASE TURN THIS QUESTIONNAIRE IN TO THE PROCTOR AFTER
CHECKING TO MAKE CERTAIN THAT ALL QUESTIONS
HAVE BEEN ANSWERED

* * * * * * * * * * * * *

APPENDIX E

INFORMED CONSENT AND RELEASE FORM

INFORMED CONSENT AND RELEASE FORM

I, the undersinged, voluntarily agree to participate in this research project. I understand that the general nature of this project is to: (1) investigate and describe the decision-making processes of vocational special needs personnel in diagnosing the needs of students with handicaps; and (2) determining which programs, modifications and supportive services would be most appropriate in meeting these needs. Information will also be collected to aid in understanding what types of training, licensure and work experiences are characteristic of the personnel offering these services in Minnesota's Area Vocational-Technical Institutes (AVTI's) and who are participating in this study. This information will be used by the Minnesota Department of Education in future program planning, training and development activities, and by the investigator in a doctoral research study at the University of Minnesota.

I grant the researcher permission to use all data related to myself that is collected through this project, as long as I am not identified by name. The researcher insures to individuals participating in this study that this information will be kept confidential in compliance with the Family Privacy Act of 1974 and professional ethics governing the field and researcher. Upon completion of the data analysis portion of the study, listings of names associated with specifc responses will be destroyed. Data gathered through this study will be collapsed, manipulated and presented in such ways as to reflect group, rather than individual responses to items.

I further understand that I am under no obligation and may withdraw from this project at any time without prejudice or penalty. In such case, all information pertaining to my personal responses will be deleted from inclusion in the analysis of study results and will be destroyed along with my name.

Signature of Participant

Date Signed

Signature of Witness

Vocational Special Needs Diagnosis
and Prescription Study - 1979

APPENDIX F

SUPPLEMENTAL STATISTICAL ANALYSES OF DATA

TABLE 1.

NUMBER OF RESPONDENTS HAVING FORMAL ACADEMIC
PREPARATION IN SPECIFIC HANDICAPS (N=31)

Handicapping Condition	Number Having Formal Academic Training	Percent of Sample
Mental Retardation	25	80.6
Specific Learning Disability	19	61.3
Emotional Disturbance	21	67.7
Orthopedic Impairments	10	32.3
Speech Impairments	7	22.6
Deafness/Hearing Impairments	11	35.5
Blindness/Visual Impairments	7	22.6
Chemical Dependency	22	71.0
Other Health Impairments (e.g. cerebral palsy,asthma)	10	32.3
Multiple Handicaps (e.g. blind-deaf)	8	25.8
Other (e.g. spinal cord injured, cardio-vascular)	3	9.7

TABLE 2.

NUMBER OF RESPONDENTS HAVING PRACTICAL WORK EXPERIENCE WITH SPECIFIC HANDICAPS (N=31)

Handicapping Condition	Number Having Practical Work Experience	Percent of Sample
Mental Retardation	27	87.1
Specific Learning Disability	27	87.1
Emotional Disturbance	27	87.1
Orthopedic Impairments	19	61.3
Speech Impairments	15	48.4
Deafness/Hearing Impairments	18	58.1
Blindness/Visual Impairments	13	42.0
Chemical Dependency	25	80.6
Other Health Impairments	17	54.8
Multiple Handicaps	9	29.0
Other (e.g. spinal cord injured, cardio-vascular)	3	9.7

TABLE 3.

NUMBER OF RESPONDENTS HAVING FORMAL ACADEMIC PREPARATION IN THE USE OR ADMINISTRATION OF DIAGNOSTIC ASSESSMENT TECHNIQUE BY TYPE (N=31)

Diagnostic Type	Number Having Formal Academic Training	Percent of Sample
Medical		
Cardiovascular	4	12.9
Gastro-Intestinal	4	12.9
General Medical	14	45.2
Neurological	5	16.1
Orthopedic	6	19.4
Psychiatric	10	32.3
Respiratory	3	9.7
Speech and Auditory	7	22.6
Urological	3	9.7
Visual	6	19.4
Psychological		
Intelligence Tests	22	71.0
Interest Inventories	26	83.9
Aptitude Tests	25	80.6
Personality Profiles	20	64.5
Perceptual - Moton Tests	21	67.7

TABLE 3. (Continued)

NUMBER OF RESPONDENTS HAVING FORMAL ACADEMIC PREPARATION IN THE USE OR ADMINISTRATION OF DIAGNOSTIC ASSESSMENT TECHNIQUE BY TYPE (N=31)

Diagnostic Type	Number Having Formal Academic Training	Percent of Sample
Educational		
Course Grade Reports	25	80.6
Performance Reports	24	77.4
Anecdotal Records/Teacher Observations	22	71.0
Attendance Record	25	80.6
Achievement Testing (Reading & Math)	29	93.5
Social/Independent Living		
Behavior Rating Scale	20	64.5
Social Worker Report	15	48.4
Economic Status Report	13	41.9
Work Experience		
Work History	22	71.0
On-the-job Training Performance Report	23	74.2
Vocational Evaluation		
Vocational Evaluation Report	24	77.4
Casenotes		
Individual Interview	25	80.6
Staff Conference Notes	24	77.4

TABLE 4.

NUMBER OF RESPONDENTS HAVING FORMAL ACADEMIC PREPARATION IN THE PROVISION OR USE OF PRESCRIPTIVE PROGRAMS, MODIFICATIONS AND SERVICES BY TYPE (N=31)

Prescriptive Service	Number Having Formal Academic Training	Percent of Sample
Program Types		
Regular Class Placement	22	71.0
Special Class Placement	22	71.0
Modified Programs	19	61.3
Pre-Vocational Programs	19	61.3
Program Modifications		
Scheduling/Length of Program	16	51.6
Curriculum Modification	22	71.0
Equipment Modification	15	48.4
Facility Modification	13	41.9
Supportive Audio-Visual Materials	20	64.5
Special Educational Supportive Services		
Remedial Instruction:		
Mathematics	14	45.2
Reading	15	48.4
Technical Tutoring	13	41.9
Bi-Lingual Instruction	8	25.8
Socialization Skills	17	54.8
Vocational Guidance:		
Career Guidance	24	77.4
Career Exploration	23	74.2

TABLE 4. (Continued)

NUMBER OF RESPONDENTS HAVING FORMAL ACADEMIC PREPARATION IN THE PROVISION OR USE OF PRESCRIPTIVE PROGRAMS, MODIFICATIONS AND SERVICES BY TYPE (N=31)

Prescriptive Service	Number Having Formal Academic Training	Percent of Sample
Special Educational Supportive Services (Cont.)		
Counseling-Testing:		
Personal-Family Counseling	16	51.6
Testing-Assessment	22	71.0
Referral to Another Agency	22	71.0
Employability Skills Training:		
Job Seeking/Job Keeping Skills	22	71.0
Job Placement	19	61.3
Communication Skills:		
Writing Skills	11	35.5
Language Instruction	9	29.0
Speech/Language Therapy	4	12.9
Sign Language	13	41.9
Transportation:		
Mobility Training	7	22.6
Van/Adaptive Vehicle	6	19.4
Public Conveyance	8	25.8
Special Devices for Students	5	16.1
Reader/Interpretor Services:		
Interpretor for the Deaf	8	25.8

TABLE 4. (Continued)

NUMBER OF RESPONDENTS HAVING FORMAL ACADEMIC PREPARATION
IN THE PROVISION OR USE OF PRESCRIPTIVE PROGRAMS,
MODIFICATIONS AND SERVICES BY TYPE (N=31)

Prescriptive Services	Number Having Formal Academic Training	Percent of Sample
Special Educational Supportive Services (Cont.)		
Reader/Interpretor Services (Cont.)		
Reader for the Blind	5	16.1
Interpretor/Bi-lingual Aid	3	9.7
Direct Educational Support Services:		
Tool Purchase	12	38.7
Tuition Waiver/Financial Aids	11	35.5
Payments for Job Training Sites	11	35.5
Non-Direct Educational Support Services:		
Maintenance	9	29.0
Prosthetic Devices	6	19.4
Medical - Dental Assistance	4	12.9
Adaptive Home Equipment	5	16.1
Aide/Companion	2	6.5
Other Supportive Services: (Specify)		
Practical Living Skills	1	3.2

TABLE 5.

PERCEIVED NEED FOR THE IN-SERVICE TRAINING BY RESPONDENTS IN DIAGNOSTIC AND PRESCRIPTIVE SERVICES BY TYPE (N=31)

Diagnostic Service	Number	Percent of Sample
Medical		
Cardiovascular	8	25.8
Gastrointestinal	7	22.6
General Medical	12	38.7
Neurological	9	29.0
Orthopedic	9	29.0
Psychiatric	11	35.5
Respiratory	7	22.6
Speech/Auditory	8	25.8
Urological	8	25.8
Visual	5	16.1
Psychological		
Intelligence Testing	12	38.7
Interest Inventories	7	22.6
Aptitude Tests	7	22.6
Personality Profiles	6	19.4
Perceptual-Motor Tests	8	25.8
Educational		
Course Grade Reports	1	3.2
Performance Reports	4	12.9

TABLE 5. (Continued)

PERCEIVED NEED FOR THE IN-SERVICE TRAINING BY RESPONDENTS

IN DIAGNOSTIC AND PRESCRIPTIVE SERVICES BY TYPE (N=31)

Diagnostic Service	Number	Percent of Sample
Educational (Cont.)		
Anecdotal Records/ Teacher Observations	1	3.2
Attendance Records	1	3.2
Achievement Tests	4	12.9
Social/Independent Living		
Behavior Rating Scales	4	12.9
Social Work Reports	3	9.7
Economic Status Reports	5	16.1
Work Experience		
Work History	0	0.0
On-the-job Perf. Report	4	12.9
Vocational Evaluation Report	6	19.4
Casenotes		
Individual Interview	2	6.4
Staff Conference Note	1	3.2
Other	0	0.0

TABLE 5. (Continued)

PERCEIVED NEED FOR THE IN-SERVICE TRAINING BY RESPONDENTS
IN DIAGNOSTIC AND PRESCRIPTIVE SERVICES BY TYPE (N-31)

Prescriptive Service	Number	Percent of Sample
Regular Course Development	5	16.1
Special Course Development	14	45.2
Pre-Vocational Training	10	32.3
Program Modifications		
Scheduling/Length	8	25.8
Curriculum Modification	13	41.9
Equipment Modification	10	32.3
Facility Modification	4	12.9
Supportive AV Materials	12	38.7
Remedial Instruction		
Mathematics	6	19.4
Reading	7	22.6
Technical Tutoring	6	19.4
Bi-lingual Instruction	11	35.5
Socialization Skills	9	29.0
Vocational Guidance		
Career Guidance	8	25.8
Career Exploration	5	16.1
Counseling-Testing		
Personal/Family Counseling	9	29.0

TABLE 5. (Continued)

PERCEIVED NEED FOR THE IN-SERVICE TRAINING BY RESPONDENTS IN DIAGNOSTIC AND PRESCRIPTIVE SERVICES BY TYPE (N=31)

Prescriptive Service	Number	Percent of Sample
Counseling-Testing (Cont.)		
Testing-Assessment	6	19.4
Referral to Agency	5	16.1
Employability Skills Training		
Job Seeking/Keeping	6	19.4
Job Placement	9	29.0
Communication Skills		
Writing Skills	5	16.1
Language Instruction	5	16.1
Speech/Language Therapy	4	12.9
Sign Language	11	35.5
Transportation		
Mobility Training	5	16.1
Van/Adaptive Vehicle	4	12.9
Public Conveyance	2	6.4
Special Devices	3	9.7
Reader/Interpretor Services		
Interpretor for Deaf	5	16.1
Reader for Blind	3	9.7
Interpretor/Bi-lingual Aid	5	16.1

TABLE 5. (Continued)

PERCEIVED NEED FOR THE IN-SERVICE TRAINING BY RESPONDENTS IN DIAGNOSTIC AND PRESCRIPTIVE SERVICES BY TYPE (N=31)

Prescriptive Service	Number	Percent of Sample
Direct Educational Support Services		
Tool Purchase	1	3.2
Tuition Waiver/Financial Aids	4	12.9
Payments for Job Training Sites	3	9.7
Non-Direct Educational Supportive Services		
Maintenance	1	3.2
Prosthetic Devices	5	16.1
Medical-Dental Assistance	2	6.4
Adaptive Home Equipment	5	16.1
Aide/Companion	2	6.4
Other	2	6.4

TABLE 6.

GEOGRAPHIC SOURCE OF STUDENTS

(N=31)

Source	Number	Percent of Sample
Metropolitan	5	16.1
Suburban	11	34.5
Rural	15	48.4
TOTAL	31	100.0

TABLE 7.

REFERRAL SOURCES FOR STUDENTS WITH HANDICAPS

(N=31)

Referral Source	Number	Percent of Sample
Self/Family	19	16.3
High School	17	54.8
Program Instructor	7	22.6
Drug Rehab. Program	7	22.6
Veterans Administration	5	16.1
Other AVTI	2	6.5
Insurance Company	6	19.4
Social Security	2	6.5
Corrections	9	29.0
CETA	14	45.2
Welfare	8	25.8
Manpower Services	6	19.4
Services for the Blind	2	6.5
Developmental Disabilities Center	1	3.2
Divisions of Voc. Rehab.	17	54.8
AVTI Counselor	1	3.2
School for the Retarded	1	3.2

TABLE 8.

PRIMARY HANDICAPS OF STUDENTS IN RESPONDENT'S CASELOADS

(N=31)

Handicaps	Number	Percent of Sample
Mental Retardation	18	58.1
Learning Disability	24	77.4
Emotional Disturbance	17	54.8
Chemical Dependency	17	54.8
Multiple Handicaps	6	19.4
Orthopedic Impairment	10	32.2
Speech Impairment	1	3.2
Deaf/Hearing Impairment	12	38.7
Blind/Visual Impairment	0	0.0
Other Health Impairments[a]	4	12.9
Other Handicaps[b]	2	6.5

Note:

[a] Includes: asthma; cerebral palsy.

[b] Includes: spinal cord injury; academic; Indo-chinese; English as second language.

TABLE 9.

ESTIMATED SIZE OF SPECIAL NEEDS STUDENT CASELOAD

Special Needs Caseload		$\bar{X}$	s.d.	Range
Total	- Regular	35.59	39.56	8-150
	- Yearly	173.62	116.36	20-425
Handicapped	- Regular	11.96	9.74	0- 30
	- Yearly	62.08	60.92	0-180

TABLE 10.

ESTIMATED NUMBER OF STUDENTS ENROLLED IN RESPONDENTS EMPLOYING AVTI

Size Range of AVTI	Number	Percent of Sample
249 or fewer	2	6.4
250 - 499	5	16.1
500 - 749	7	22.6
750 - 999	2	6.4
1000 -1499	10	32.3
1500 -1999	3	9.7
2000 or more	2	6.4
TOTAL		99.9[a]

Note:

[a] Does not equal 100.0 due to rounding.

TABLE 11.

PERCEIVED COMMUNITY AND AVTI AVAILABILITY OF DIAGNOSTIC AND PRESCRIPTIVE SERVICES BY RESPONDENTS (N=31)

Diagnostic Service	Number	Percent of Sample
Medical		
Cardiovasular	12	38.7
Gastrointestinal	11	35.5
General Medical	21	67.7
Neurological	15	48.4
Orthopedic	15	48.4
Psychiatric	20	64.5
Respiratory	11	35.5
Speech/Auditory	18	58.1
Urological	9	29.0
Visual	18	58.1
Psychological		
Intelligence Tests	26	83.9
Interest Inventories	24	77.4
Aptitude Tests	26	83.9
Personality Profile	19	61.3
Perceptual-Motor Tests	19	61.3
Educational		
Course Grade Reports	25	80.6
Performance Reports	24	77.4

TABLE 11. (Continued)

PERCEIVED COMMUNITY AND AVTI AVAILABILITY OF DIAGNOSTIC

AND PRESCRIPTIVE SERVICES BY RESPONDENTS (N=31)

Diagnostic Service	Number	Percent of Sample
Educational (Cont.)		
Anecdotal Records/ Teacher Observations	19	61.3
Attendance Records	24	77.4
Achievement Tests	28	90.3
Social/Independent Living		
Behavior Rating Scales	9	29.0
Social Worker Reports	17	54.8
Economic Status Reports	12	38.7
Work Experience		
Work History	21	67.7
On-The-Job. Performance Report	13	41.9
Vocational Evaluation Report	27	87.1
Casenotes		
Individual Interview	23	74.2
Staff Conference Notes	21	67.7
Other[a]	1	3.2

TABLE 11. (Continued)

PERCEIVED COMMUNITY AND AVTI AVAILABILITY OF DIAGNOSTIC AND PRESCRIPTIVE SERVICES BY RESPONDENTS (N=31)

Prescriptive Services	Number	Percent of Sample
Programs		
Special Programs	19	61.3
Modified Programs	24	77.4
Pre-vocational Programs	24	77.4
Program Modifications		
Scheduling/Length of Program	20	64.5
Curriculum Modification	21	67.7
Equipment Modification	12	38.7
Facility Modification	16	51.6
Supportive A-V Materials	24	77.4
Supportive Services		
Remedial Instruction:		
Mathematics	29	93.5
Reading	29	93.5
Technical Tutoring	26	83.9
Bi-Lingual Instruction	18	58.1
Socialization Skills	14	45.7
Vocational Guidance		
Career Guidance	25	80.6
Career Exploration	25	80.6

TABLE 11. (Continued)

PERCEIVED COMMUNITY AND AVTI AVAILABILITY OF DIAGNOSTIC AND PRESCRIPTIVE SERVICES BY RESPONDENTS (N=31)

Prescriptive Services	Number	Percent of Sample
Counseling-Testing		
Personal/Family Counseling	18	58.1
Testing-Assessment	25	80.6
Referral to Agency	23	74.2
Employability Skills Training		
Job Seeking/Keeping	27	87.1
Job Placement	22	71.0
Communication Skills		
Writing Skills	21	67.7
Language Instruction	21	67.7
Speech/Language Therapy	11	35.5
Sign Language	18	58.1
Transportation		
Mobility Training	7	22.6
Van/Adaptive Vehicle	8	25.8
Public Conveyance	9	29.0
Special Devices	6	19.4
Reader/Interpretor Services		
Interpretor for the Deaf	19	61.3
Reader for the Blind	8	25.8
Interpretor/Bi-Lingual Aid	6	19.4

TABLE 11. (Continued)

PERCEIVED COMMUNITY AND AVTI AVAILABILITY OF DIAGNOSITC AND PRESCRIPTIVE SERVICES BY RESPONDENTS (N=31)

Prescriptive Services	Number	Percent of Sample
Direct Educational Support Services		
Tool Purchase	19	61.3
Tuition Waiver/Financial Aids	24	48.4
Non-Direct Educational Support Services		
Maintenance	14	45.2
Prosthetic Devices	11	35.5
Medical-Dental Assistance	8	25.8
Adaptive Home Equipment	6	19.4
Aide/Companion	7	22.6
Other	0	0.0

Note:

[a] Includes individual staff/personnel notes.

TABLE 12.

ORDER OF SELECTION OF DIAGNOSTIC INFORMATION BY INDIVIDUAL RESPONDENTS ON CASE STUDY A

Diagnostic Information Type	Subject																															TOTAL TIMES SELECTED
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Medical																																
Cardiovascular																																0
Gastrointestinal																																0
General Medical	10	2	2		3	1	1		1	2		1	1	2	5	4	3			2	1	1	1	1	2	14	1	12	2	4	6	26
Neurological	4										12											5									8	4
Orthopedic	2	3	3		4	5	2	3	2	3	2	6	2	3			2	3	2	3		4	3	2	3	13	2	11	3	2	13	27
Psychiatric											8	4	3		7		10						2	3	4	12	3	13	4		9	13
Respiratory																																0
Speech & Auditory																										11					5	2
Urological																																0
Visual	5																									10						2
Psychological																																
Intelligence		10	6						7	4		5	8			11	5		4			7	4			7	5	7				14
Interest							4		5	9	7		6			5			5		2	9	5	4			4	6				13
Aptitude	8								6	8	6		5			6		4		4		8	6	5	5			5			14	14
Personality		1						1	8	10			11			12	8		6		3			6		9		8			15	13
Perceptual-Motor		7							9		11		7	5	6	13					4		7	8							10	11
Educational																																
Course Grades	9	5			1				4	5	9				2	1	9				7		8		7	3	6	2	8		1	17
Performance Report	3		4				9			7					1	2		2	8		6	6				5		4	10	5	2	15
Anecdotal Record-Teacher Obs.	7				2				3						4					7			9	7	8	6		14	11		5	12
Attendance									11								12															2
Achievement	6	6	5	3		2	8	5	10	6	5		9	4	3	3	4	1	3	5	5	3	10		6	4	7	3	9	6	3	28

TABLE 12. (Continued)

ORDER OF SELECTION OF DIAGNOSTIC INFORMATION BY INDIVIDUAL RESPONDENTS ON CASE STUDY A

Diagnostic Information Type	Subject																															TOTAL TIMES SELECTED
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Social/Ind. Living																																
Behavior Rating						3		2	13	12			13								8		14								12	8
Social Worker Report		4					5	6	12		10					7	1			1			11	9	9	8		15	6		11	15
Economic Status			8										12	7			11						15					16	7			7
Work Exp./History																																
Work History								4					10					5					12				8					5
OJT Report					6																											1
Vocational Evaluation Report	1	8	7	2	5	4	3		14	1	3	2	4	1	8	8	7	6	1	6	9	2	13	10	1	1	9	1	5	3	16	30
Casenotes																																
Individual Interview		9	1	1	7		7			11	1	3		6		9	6		7					11		2		10	1	1	17	18
Staff Conference					8		6			13	4					10												9		7	18	8
Other[a]																										15					4	2
TOTAL REPORTS USED BY SUBJECT	10	10	8	3	8	5	9	6	14	13	12	6	13	7	8	13	12	6	8	7	9	9	15	11	9	15	9	16	11	7	18	307

Note.

[a] Includes additional personal interview with student and reading mastery test.

TABLE 17.

ORDER OF SELECTION OF DIAGNOSTIC INFORMATION BY INDIVIDUAL RESPONDENTS ON CASE STUDY B

Diagnostic Information Type	Subject																															TOTAL TIMES SELECTED
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Medical																																
Cardiovascular																																0
Gastrointestinal																																0
General Medical	7	1	3		5	1	1	5	1	8	11	2	1	1	6	1	9	3		2	1	1	1	1	3	4	1	1	2			27
Neurological																														7		1
Orthopedic																																0
Psychiatric	3											7	3			8					3	7	3	3		5		9	4	9	7	13
Respiratory																																0
Speech & Auditory	2	4	2		4	3	2		2		2	6	2	2	7		3		2			6	2	2	2	3	2	8	3	8		23
Urological																																0
Visual																										6						1
Psychological																																
Intelligence		2							13	4		3	9				7				2	5	4		7	7		10		5		13
Interest		9							9	6	10		8	9	4		10				4		5	5				11				12
Aptitude		7							8		9		6	4								4	6	4	4			2				10
Personality								1					7			7	13			4	5				9		3	12			8	13
Perceptual-Motor		8						3	10		8	8	5		5		6				6		7	6				13		6		13
Educational																																
Course Grades	5				3				15	7	7		16	7	3	2	8	2		3			8		6	8		3	9		1	18
Performance Report	4		4						4		4		13	8	1		11		4				9	8	8		5	5	10		2	16
Anecdotal Record-Teacher Obs.									3							3	12				9			7		10		7	11		4	9
Attendance									5				15															6	12			4
Achievement		6	6	4	7	2	6	4	11	5	6	5	14	5	2		14	1	3	5	7	3	10		5	9	4	4	8		3	27

TABLE 13. (Continued)

ORDER OF SELECTION OF DIAGNOSTIC INFORMATION BY INDIVIDUAL RESPONDENTS ON CASE STUDY B

Diagnostic Information Type	Subject																															TOTAL TIMES SELECTED
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Social/Ind. Living																																
Behavior Rating		10						2	7		5		10		8		4				10		11							4		10
Social Worker Report		3							6	10	12		11	10		4	5	6		1			12		10	11		19	6	3	5	17
Economic Status	6		7		6				12	9	13	9	12										13	9		12	6	14	7		6	15
Work Exp./History																																
Work History													17					5		6				10				15				5
OJT Report																											7					1
Vocational Evaluation Report	1	5	5	3	2		3	6	14	1	3	1	4	3		5	2	4	1	7	8	2	14	11	1	1		16	1	2	9	28
Casenotes																																
Individual Interview			1	1	1		5			3	1	4	18	6	9	6	1			8				12		2	8	18	5	1	10	20
Staff Conference				2			4			2																		17		10	11	6
Other [a]																										13						1
TOTAL REPORTS USED BY SUBJECTS	7	10	7	4	7	3	6	6	15	10	13	9	18	10	9	8	14	6	4	8	10	7	14	12	10	13	8	19	12	10	11	300

Note.

[a] Includes additional personal interview with student.

TABLE 14.

RANKING OF DIAGNOSTIC INFORMATION TYPES IN TERMS OF CUMMULATIVE PROPORTIONS ACROSS STEPS AND CASE STUDIES

Diagnostic Information Type	Cummulative Proportionate Use by Step																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
General Medical	.37	.53	.61	.66	.71	.74	.76	.78	.80	.82	.84	.86	.86	.88	.88	.88	.88	.88	.88
Vocational Evaluation Report	.23	.34	.45	.51	.59	.64	.69	.75	.80	.82	.84	.84	.86	.91	.91	.94	.94	.94	.94
Orthopedic[a]	.00	.16	.32	.35	.37	.39	.39	.39	.39	.39	.41	.41	.44	.44	.44	.44	.44	.44	.44
Achievement Test	.03	.08	.24	.35	.51	.65	.70	.73	.78	.83	.85	.85	.86	.88	.88	.88	.88	.88	.88
Speech & Auditory[a]	.00	.19	.25	.28	.30	.33	.35	.38	.38	.38	.40	.40	.40	.40	.40	.40	.40	.40	.40
Individual Interview	.18	.21	.24	.26	.29	.35	.40	.43	.48	.51	.54	.56	.56	.56	.56	.56	.58	.61	.61
Course Grades	.06	.12	.20	.22	.27	.30	.38	.46	.52	.52	.52	.52	.52	.52	.54	.56	.56	.56	.56
Performance Report	.03	.09	.11	.22	.28	.31	.33	.39	.42	.46	.47	.47	.49	.49	.49	.49	.49	.49	.49
Intelligence Test[b]	.00	.03	.05	.13	.21	.23	.34	.36	.38	.41	.43	.43	.45	.45	.45	.45	.45	.46	.46
Aptitude Test[b]	.00	.02	.02	.12	.18	.28	.30	.36	.38	.38	.38	.38	.38	.40	.40	.40	.40	.40	.40
Interest Inventory	.00	.02	.02	.10	.20	.25	.27	.29	.37	.40	.42	.42	.42	.42	.42	.42	.42	.42	.42
Social Worker Report	.05	.06	.08	.11	.16	.24	.26	.28	.31	37	.43	.48	.48	.48	.50	.50	.50	.50	.52
Psychiatric	.00	.02	.15	.21	.23	.23	.29	.32	.37	.39	.39	.41	.43	.43	.43	.43	.43	.43	.43
Perceptual-Motor Test	.00	.00	.02	.04	.09	.17	.23	.29	.31	.34	.36	.36	.39	.39	.39	.39	.39	.39	.39
Personality Profile[b]	.05	.06	.08	.10	.12	.15	.18	.24	.27	.29	.31	.34	.36	.36	.38	.38	.38	.38	.38
Anecdotal Record/[b] Teacher Obs.	.00	.02	.07	.10	.12	.14	.22	.24	.27	.29	.32	.34	.34	.36	.36	.36	.36	.36	.36
Economic Status	.00	.00	.00	.00	.00	.06	.12	.14	.19	.19	.21	.27	.30	.32	.34	.36	.36	.36	.36
Behavior Rating	.00	.03	.05	.08	.10	.10	.12	.15	.15	.20	.22	.25	.28	.30	.30	.30	.30	.30	.30
OTHER DIAGNOSTIC INFORMATION																			
Staff Conference Notes																			.25
Work History																			.18
Attendance Report																			.11
Neurological																			.10
Visual																			.08
Other[c]																			.06
OJT Report																			.04
Cardiovascular																			.00
Gastrointestinal																			.00
Respiratory																			.00
Urological																			.00

Note.

[a] Medical specialty reports correspond to primary handicapping condition present in each simulated case study.

[b] Information type tied for step based upon utilization.

[c] Includes additional personal interview and reading mastery test.

[d] Medical specialty reports not used nor were handicapping conditions relating to report present in simulated case studies.

TABLE 15.

IMPACT OF RESPONDENT'S LICENSURE-JOB TITLE ON NUMBER OF PIECES OF DIAGNOSTIC INFORMATION USED ACROSS CASES

Special Needs Supervisor (N=12)		Support Service Manager (N=12)		Vocational Instructor - Evaluator (N=26)				Other[a] (N=12)	
Number Used	Median	Number Used	Median	Number Used			Median	Number Used	Median
6	12.0	10	8.5	10	7	12	9.5	5	11.5
14		8		3	10	10		13	
13		8		9	4			13	
9		8		12	6			15	
16		8		6	13			11	
18		15		7	9			9	
6		7		12	10			3	
15		7		6	14			18	
10		7		7	6			8	
10		9		9	8			14	
19		4		9	10			12	
11		13		11	7			8	

Chi-Square = 17.09 Significance = $p < .001$* Degrees of Freedom = 3

Note.

[a] Includes: Evaluator Aide; Remedial Related Instructor; Vocational Counselor; Technical Tutor; etc.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 16.

IMPACT OF PERCENTAGE OF RESPONDENT'S JOB DUTIES INVOLVED WITH DIAGNOSIS AND PRESCRIPTION ON THE NUMBER OF PIECES OF DIAGNOSTIC INFORMATION USED ACROSS CASES

0 - 30 % of Job Duties (N=20)			31 - 60 % of Job Duties (N=20)			61 - 100 % of Job Duties (N=22)			
Number Used		Median	Number Used		Median	Number Used			Median
5	15	10.5	12	15	10.3	6	12	9	8.5
3	14		14	13		6	13	8	
11	7		6	11		7	13		
12	10		6	12		8	18		
8	3		9	18		9	8		
7	4		10	11		7	9		
14	13		9	10		10	6		
15	8		6	7		10	9		
13	16		9	8		8	7		
10	19		10	4		7	10		

Chi-Square = 2.313

Significance = $.50 > p > .30$ *

Degrees of Freedom = 2

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 17.

IMPACT OF HIGHEST LEVEL OF ACADEMIC PREPARATION ACHIEVED BY RESPONDENT ON NUMBER OF PIECES OF DIAGNOSTIC INFORMATION USED ACROSS CASES

Baccalaureate (N=16)		
Number Used		Median
10	15	10.5
10	13	
8	9	
9	8	
12	11	
14	12	
15	7	
14	10	

Master's (N=44)						
Number Used						Median
10	9	12	13	9	16	9.6
7	6	13	8	10	19	
8	6	6	6	9	18	
7	6	9	6	7	11	
3	14	13	8	11		
4	15	18	4	12		
8	13	7	7	9		
7	10	10	8	10		

Chi-Square = 35.10 Significance = $p < .001$* Degrees of Freedom = 1

Note.

[a] Number of respondents equals 30 due to lack of degree by one participant. Total possible responses equal to 60.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 18.

IMPACT OF FIELD OF HIGHEST ACADEMIC PREPARATION ACHIEVED BY RESPONDENT ON NUMBER OF PIECES OF DIAGNOSTIC INFORMATION USED ACROSS CASES

Vocational-Industrial- Home Economics Education (N=8)		Special Education (N=14)			Vocational Rehabilitation (N=18)			Counseling (N=8)		Other[b] (N=12)		
Number Used	Median	Number Used		Median	Number Used		Median	Number Used	Median	Number Used		Median
13	12.5	8	6	7.5	10	8	8.6	10	13.0	8	11	10.5
8		7	6		10	4		7		9	12	
12		6	18		8	7		14		15		
14		6	11		7	8		15		13		
9		13			3	9		11		9		
10		10			4	7		12		8		
15		6			9	9		16		13		
14		9			6	10		19		18		
		7			12					7		
		10			13					10		

Chi-Square = 28.22 Significance = $p < .001$* Degrees of Freedom = 4

Note.

[a] One respondent did not have an academic degree, therefore N = 30 and total number of responses equal 60.

[b] Includes: Elementary Education; Psychology; Social Studies; Chemistry; Mathematics.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 19.

IMPACT OF YEARS OF TEACHING COMPLETED BY RESPONDENT ON NUMBER OF PIECES OF DIAGNOSTIC INFORMATION USED ACROSS CASES

1 - 4 Years (N=16)		5 - 9 Years (N=20)			10 - 14 Years (N=14)		15 Years or More (N=12)	
Number Used	Median	Number Used		Median	Number Used	Median	Number Used	Median
10	8.0	12	15	10.5	8	8.8	6	10.5
7		13	13		7		6	
10		6	18		8		14	
10		9	11		7		15	
3		13			13		13	
4		18			8		10	
5		8			12		6	
3		9			14		6	
9		7			8		15	
6		8			4		14	
7		9			9		7	
10		10			8		10	
9		11			16			
7		12			19			
11		9						
12		10						

Chi-Square = 5.06 Significance = .20 > p > .10* Degrees of Freedom = 3

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

*Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 20.

PROGRAM TYPE, MODIFICATIONS AND SPECIAL SUPPORTIVE EDUCATIONAL SERVICES AS PRESCRIBED BY INDIVIDUAL RESPONDENTS FOR CASE STUDY A

Program Type	Subject 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL TIMES SELECTED
Regular Class		X	X		X			X	X												X										X	7
Special Class																																0
Modified Class	X			X						X		X	X	X		X	X	X	X				X	X	X		X	X	X			16
Pre-Vocational Class						X	X				X				X					X		X				X				X		8

Program Modification	Subject 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Schedule-Length of Program	X			X								X					X					X		X		X						7
Curriculum								X				X																				2
Equipment	X		X		X		X						X	X			X		X				X				X					10
Facility																	X															1
Supportive Audio-Visual Materials												X		X										X					X			4

Special Educational Supportive Service	Subject 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Remedial Instruction																																
Mathematics		X				X	X	X		X		X			X			X	X	X		X				X	X		X	X		15
Reading	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	28
Technical Tutor	X				X				X	X	X	X		X	X		X				X	X		X		X		X	X			15
Bi-Lingual																																0
Socialization																X			X	X				X								4
Vocational Guidance																																
Career Guidance		X							X	X				X	X			X		X		X		X		X		X	X	X	X	14
Career Exploration		X				X				X	X				X					X		X		X		X		X	X			11
Counseling-Testing																																
Personal-Family Counseling									X								X		X	X						X	X			X	X	8
Testing-Assessment		X																								X						2
Referral-Other Agency																																0
Employability Skills Training																																
Job Seeking/Keeping			X		X				X	X	X	X	X	X	X	X	X			X			X		X	X			X	X	X	18
Placement Assistance			X		X			X	X	X	X	X	X	X	X	X	X		X	X	X		X	X		X			X	X	X	21
Communications																																
Writing Skills			X					X							X					X				X					X	X		7
Language Instruction																													X			1
Speech/Language Therapy																																0
Sign Language																																0

TABLE 20. (Continued)

PROGRAM TYPE, MODIFICATIONS AND SPECIAL SUPPORTIVE EDUCATIONAL SERVICES AS PRESCRIBED BY INDIVIDUAL RESPONDENTS FOR CASE STUDY A (Continued)

Special Educational Supportive Services	Subject																															TOTAL TIMES SELECTED
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Transportation																																
Mobility Training																																
Van/Adaptive Vehicle																	X									X						2
Public Conveyance		X						X	X								X									X						2
Special Devices for the Student									X								X		X	X							X					5
Reader/Interpreter																																3
Interpreter for the Deaf																																
Reader for the Blind																																0
Interpreter/ Bi-Lingual																																0
Direct Educational Support Services																																0
Tool Purchase																																
Tuition Waiver/ Financial Aid																	X									X						2
Payment for Job Training Sites			X					X	X						X		X		X		X					X			X			9
Non-direct Educational Support Services												X	X													X						3
Maintenance																																
Prosthetic Devices													X		X	X	X						X		X		X					7
Medical-Dental Assistance		X			X			X	X			X	X	X		X	X		X	X			X	X		X	X	X	X			17
Adaptive Home Equipment					X				X																							2
Aide/Companion																																0
Other Supportive[a] Services		X						X					X			X	X	X	X						X		X		X			0 10
TOTAL MODIFICATIONS USED BY RESPONDENT	2	0	1	1	1	0	1	1	0	0	0	3	1	2	0	0	3	0	1	0	0	1	1	2	0	1	1	0	1	0	0	24
TOTAL SUPPORTIVE SERVICES USED BY RESPONDENT	2	8	5	1	5	3	2	8	11	7	5	7	6	6	10	7	13	4	9	11	4	5	5	8	3	15	7	5	11	8	5	206

Note.

[a] Includes typing, practical living program, physical therapy, use of work samples, training tryout, counseling for acceptance of disability, independent living skills, and other supportive counseling.

TABLE 21.

PROGRAM TYPE, MODIFICATIONS AND SPECIAL SUPPORTIVE EDUCATIONAL SERVICES AS

PRESCRIBED BY INDIVIDUAL RESPONDENTS FOR CASE STUDY B

Program Type	Subject																															TOTAL TIMES SELECTED
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Regular Class						X		X	X	X										X		X					X					7
Special Class																																0
Modified Class	X		X	X							X	X	X	X	X	X	X	X					X	X		X		X	X	X	X	18
Pre-Vocational Class		X			X		X												X		X				X							6

Program Modification	Subject																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Schedule-Length of Program	X		X	X							X	X		X	X						X				X		X		X	X	X	13
Curriculum			X				X	X			X	X	X	X		X	X					X	X				X	X	X	X	X	16
Equipment																	X									X		X		X		4
Facility																																0
Supportive Audio-Visual Materials	X		X				X	X	X			X		X			X							X	X		X	X		X	X	14

Special Educational Supportive Service	Subject																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Remedial Instruction																																
Mathematics		X	X		X		X	X	X			X			X		X		X	X	X	X	X	X	X	X		X	X		X	20
Reading	X	X	X	X	X		X	X	X			X		X	X		X		X	X	X		X	X	X	X	X	X	X	X	X	24
Technical Tutor	X	X	X			X		X		X	X	X	X	X			X		X		X	X	X	X	X	X	X	X	X	X	X	23
Bi-Lingual																																0
Socialization		X	X		X		X	X			X	X	X	X		X	X	X		X	X		X	X	X	X		X	X	X	X	22
Vocational Guidance																																
Career Guidance													X	X			X			X			X		X				X	X	X	9
Career Exploration							X				X						X						X							X		5
Counseling-Testing																																
Personal-Family Counseling									X		X	X	X			X	X	X	X	X					X	X		X	X	X		14
Testing-Assessment		X			X												X					X			X							5
Referral-Other Agency											X						X															2
Employability Skills Training																																
Job Seeking/Keeping		X	X			X		X	X	X	X	X	X	X	X	X	X		X	X	X		X	X				X	X	X	X	22
Placement Assistance			X					X	X	X	X	X	X	X	X	X	X		X	X	X		X			X		X	X	X	X	20
Communications																																
Writing Skills		X					X								X		X		X			X						X	X	X	X	10
Language Instruction		X												X					X									X		X		5
Speech/Language Therapy		X	X											X			X		X				X		X	X		X	X	X		11
Sign Language	X	X	X		X	X				X			X		X	X	X		X	X				X	X	X	X	X	X	X	X	20

TABLE 21. (Continued)

PROGRAM TYPE, MODIFICATIONS AND SPECIAL SUPPORTIVE EDUCATIONAL SERVICES AS PRESCRIBED BY INDIVIDUAL RESPONDENTS FOR CASE STUDY B (Continued)

Special Educational Supportive Services	Subject																															TOTAL TIMES SELECT
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Transportation																																
Mobility Training																																0
Van/Adaptive Vehicle																	X															1
Public Conveyance		X						X	X	X				X			X			X						X				X	X	10
Special Devices for the Student[a]	X					X	X	X	X				X			X	X		X	X	X	X	X	X				X	X	X	X	18
Reader/Interpretor																																
Interpretor for the Deaf	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	29
Reader for the Blind																																0
Interpretor/ Bi-Lingual			X																													1
Direct Educational Support Services																																
Tool Purchase		X	X						X			X		X	X	X	X			X	X		X	X		X		X	X		X	16
Tuition Waiver/ Financial Aid		X	X		X			X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	26
Payment for Job Training Sites												X	X				X										X	X				5
Non-direct Educational Support Services																																
Maintenance		X	X						X	X		X		X	X	X	X	X		X	X		X	X			X	X	X	X	X	19
Prosthetic Devices																																0
Medical-Dental Assistance		X							X								X															3
Adaptive Home Equipment																	X															1
Aide/Companion																										X						1
Other Supportive Services[b]	X	X						X			X	X	X	X				X				X	X					X		X		12
TOTAL MODIFICATIONS USED BY RESPONDENT	2	0	3	1	0	0	2	2	1	0	2	3	1	3	1	1	3	0	0	0	1	1	1	1	2	1	3	3	2	4	3	47
TOTAL SUPPORTIVE SERVICES USED BY RESPONDENT	6	18	13	2	7	4	6	11	12	7	12	13	14	14	10	10	24	6	13	14	11	7	15	11	11	13	7	18	16	18	15	354

Note.

[a] Includes Tele-Typewriter for the Deaf, color-coded equipment, hearing aid, hard hat for identification (safety factor).

[b] Includes other students who use sign language, work study, front of class placement, study partner, reality therapy regarding financial situation, part-time employment, group home placement, social-recreational activities, practical living program, supportive peer group involvement, deaf preparatory program prior to placement in modified program, note-taker, financial aid assistance (e.g. Division of Vocational Rehabilitation, CETA, BEOG).

TABLE 22.

CONSISTENCY IN USAGE OF PROGRAM PLACEMENT TYPES BY
A RESPONDENT ACROSS CASES

Case Study B	Case Study A			Total
	Regular	Modified	Prevocational	
Regular	1.58 2	3.61 2	1.81 3	7
Modified	4.06 2	9.29 12	4.65 4	18
Prevocational	1.35 3	3.10 2	1.55 1	6
Total	7	16	8	31

Chi-square = - 0.63 Significance = $p > .95$* Degrees of Freedom = 4

Note.

[a] Special class placement option deleted from analysis due to zero's in all cells which would lead to spuriously high results.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

*Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 23.

CONTRAST IN SELECTION OF PROGRAM PLACEMENT TYPES
BY RESPONDENTS FOR CASE STUDY A

	Program Type				Total
	Regular	Special	Modified	Pre-Vocational	
Expected[a] Number	← 7.75 →				
Observed Number	7	0	16	8	31

$$\chi^2 = \sum \left[\frac{(f_o - f_e)^2}{f_e} \right] = 16.61$$ Significance = $p < .001$[+] Degrees of Freedom = 3

Note.

[a] Expected number equals mean use of program types across respondents.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

[+] Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 24.

CONTRAST IN SELECTION OF PROGRAM PLACEMENT TYPES
BY RESPONDENTS FOR CASE STUDY B

	Program Type				Total
	Regular	Special	Modified	Pre-Vocational	
Expected[a] Number	← 7.75 →				
Observed Number	7	0	18	6	31

$\chi^2 = \sum\left[\frac{(f_o - f_e)^2}{f_e}\right] = 21.77$ Significance = $p < .001$ * Degrees of Freedom = 3

Note.

[a] Expected number equals mean use of program types across respondents.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

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* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 25.

CONTRAST IN NUMBER OF PROGRAM MODIFICATIONS SELECTED BY RESPONDENTS FOR CASE STUDY A

NUMBER

	Subject																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL
Expected Number[a]	← .774 →																															
Observed Number	2	0	1	1	1	0	1	1	0	0	0	3	1	2	0	0	3	0	1	0	0	1	1	2	0	1	1	0	1	0	0	24

Chi-Square = 30.26 Significance = $.50 > p > .30$* Degrees of Freedom = 30

Note.

[a] Equals mean number of program modifications selected by respondents.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

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* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 26.

CONTRAST IN NUMBER OF PROGRAM MODIFICATIONS SELECTED
BY RESPONDENTS FOR CASE STUDY B

	Subject																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL
Expected[a] Number	← 1.516 →																															
Observed Number	2	0	3	1	0	0	2	2	1	0	2	3	1	3	1	1	3	0	0	0	1	1	1	1	2	1	3	3	2	4	3	47

Chi-Square = 27.54

Significance = $.70 > p > .50$*

Degrees of Freedom = 30

Note.

[a] Expeceted number equals mean number of program modifications used by respondents.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 27.

CONSISTENCY IN NUMBER OF PROGRAM MODIFICATIONS SELECTED BY A RESPONDENT ACROSS CASES

Respondent	Case A	Case B	$\frac{D}{(A-B)}$
1	2	2	0
2	0	0	0
3	1	3	-2
4	1	1	0
5	1	0	1
6	0	0	0
7	1	2	-1
8	1	2	-1
9	0	1	-1
10	0	0	0
11	0	2	-2
12	3	3	0
13	1	1	0
14	2	3	-1
15	0	1	-1
16	0	1	-1
17	3	3	0
18	0	0	0
19	1	0	1
20	0	0	0
21	0	1	-1
22	1	1	0
23	1	1	0
24	2	1	1
25	0	2	-2
26	1	1	0
27	1	3	-2
28	0	3	-3
29	1	2	-1
30	0	4	-4
31	0	3	-3
Σ	24	47	-21
$\bar{X}$	0.774	1.516	-0.742
S	0.869	1.160	1.190
$s_{\bar{x}}$	0.156	0.208	0.214

$$\text{Correlated } t = \frac{\bar{X}_d}{\sqrt{\frac{\bar{x}_d^2}{N(N-1)}}} = -1.927$$

Degrees of Freedom = 30

Significance = $.10 > p > .05$[*]

$r_{12} = +0.34$

Source.

Guilford, J. P. & Fruchter, B. Fundamental Statistics in Psychology and Education. New York: McGraw-Hill, Inc., 1978.

[*] Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 28.

CONTRAST IN FREQUENCY OF SELECTION OF PROGRAM MODIFICATIONS IN CASE STUDY A

	Program Modification					Total
	Schedule-Length of Program	Curriculum	Equipment	Facility	Supportive Audio-Visual Materials	
Expected[a] Number	←		4.80		→	
Observed Number	7	2	10	1	4	24

$\chi^2 = \Sigma \left[\frac{(f_o - f_e)^2}{f_e} \right] = 11.42$ Significance = $.05 > p > .02$*   Degrees of Freedom = 4

Note.

[a] Expected number equals mean number of times each program modification type was used.

Source.

Siegle, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 29.

CONTRAST IN FREQUENCY OF SELECTION OF PROGRAM MODIFICATIONS IN CASE STUDY B

	Program Modifications					Total
	Schedule-Length of Program	Curriculum	Equipment	Facility	Supportive Audio-Visual Materials	
Expected[a] Number	← 9.40 →					
Observed Number	13	16	4	0	14	47

$\chi^2 = \sum \left[\frac{(f_o - f_e)^2}{f_e} \right] = 20.77$ Significance = $p < .001$* Degrees of Freedom = 4

Note.

[a] Expected number equals mean number of times program modification types were used.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

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* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 30.

CONTRAST IN NUMBER OF SPECIAL EDUCATIONAL SUPPORT SERVICES SELECTED BY RESPONDENTS FOR CASE STUDY A

	Subject																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL
Expected[a] Number	← 6.645 →																															
Observed Number	2	8	5	1	5	3	2	8	11	7	5	7	6	6	10	7	13	4	9	11	4	5	5	8	3	15	7	15	11	8	5	206

Chi-Square = 59.41 Significance = $.01 > p > .001$* Degrees of Freedom = 30

Note.

[a] Expected number equals mean number of services used by respondents.

Source.

Siegle, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 31.

CONTRAST IN NUMBER OF SPECIAL EDUCATION SUPPORT SERVICES SELECTED BY RESPONDENTS FOR CASE STUDY B

	Subject																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL
Expected[a] Number	← 11.419 →																															
Observed Number	6	18	13	2	7	4	6	11	12	7	12	13	14	14	10	10	24	6	13	14	11	7	15	11	11	13	7	18	16	18	15	354

Chi-Square = 59.57 Significance = $.01 > p > .001$[*] Degrees of Freedom = 30

Note.

[a] Expected number equals mean number of special education support services used by respondents.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

[*] Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 32.

CONSISTENCY IN NUMBER OF SPECIAL EDUCATION SUPPORT SERVICES USED BY A RESPONDENT ACROSS CASES

Subject	Number of Services Used		Difference (A-B)
	Case A	Case B	
1	2	6	-4
2	8	18	-10
3	5	13	-8
4	1	2	-1
5	5	7	-2
6	3	4	-1
7	2	6	-4
8	8	11	-3
9	11	12	-1
10	7	7	0
11	5	12	-7
12	7	13	-6
13	6	14	-8
14	6	14	-8
15	10	10	0
16	7	10	-3
17	13	24	-11
18	4	6	-2
19	9	13	-4
20	11	14	-3
21	4	11	-7
22	5	7	-2
23	5	15	-10
24	8	11	-3
25	3	11	-8
26	15	13	2
27	7	7	0
28	5	18	-13
29	11	16	-5
30	8	18	-5
31	5	15	-10
Σ	206	354	-147
$\bar{X}$	6.65	11.55	- 4.74
S	3.30	4.76	3.81
$s_{\bar{x}}$	1.82	3.82	1.22

Correlated $t = \dfrac{\bar{X}_d}{\sqrt{\dfrac{x_d^2}{N(N-1)}}} = -1.96$

Degrees of Freedom = 30

Significance = $.10 > p > .05$ *

r_{12} = +0.58

Source.

Guilford, J. P. & Fruchter, B. Fundamental Statistics in Psychology and Education. New York: McGraw-Hill, Inc., 1978.

* Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 33.

CONTRAST IN FREQUENCY OF SELECTION OF SPECIAL EDUCATIONAL SUPPORT SERVICES IN CASE STUDY A

	Special Educational Support Services[b]																																Total
	RM	RR	RT	RB	RS	CG	CE	PF	TA	RF	JS	PA	WR	LG	SL	SN	MO	VV	PC	SD	ID	RD	IB	TP	TW	PJ	MN	PS	MD	AH	AC	O	
Expected[a] Number	← 9.40 →																																
Observed Number	15	28	15	0	4	14	11	8	2	0	18	21	7	1	0	0	2	2	5	3	0	0	0	2	9	3	7	17	2	0	0	10	206

$\chi^2 = \sum\left[\frac{(f_o - f_e)^2}{f_e}\right] = 264.68$ Significance = $p < .001$* Degrees of Freedom = 31

Note.

[a] Expected number equals mean nunber of special educational support services used by respondents.

[b] Includes: RM - Remedial Mathematics; RR - Remedial Reading; RT - Technical Tutor; RB - Bilingual Remedial Instruction; RS - Socialization Instruction; CG - Career Guidance; CE - Career Exploration; PF - Personal/Family Counseling; TA - Testing/Assessment; RF - Referral to Other Agency; JS - Job Seeking/Keeping Skills; PA - Placement Assistance; WR - Writing Skills; LG - Language Skills; SL - Speech/Language Therapy; SN - Sign Language; MO - Mobility Training; VV - Van/Adaptive Vehicle; PC - Public Conveyance; SD - Special Devices for the Student; ID - Interpretor for the Deaf; RD - Reader for the Blind; IB - Interpretor/Bilingual; TP - Tool Purchase; TW - Tuition Waiver/Financial Aids; PJ - Payment for Job Training Sites; MN - Maintenance; PS - Prosthetic Devices; MD - Medical/Dental Assistance; AH - Adaptive Home Equipment; AC - Aide/Companion; O - Other.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

*Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 34.

CONTRAST IN FREQUENCY OF SELECTION OF SPECIAL EDUCATIONAL SUPPORT SERVICES IN CASE STUDY B

	Special Educational Support Services[b]																																
	RM	RR	RT	RB	RS	CG	CE	PF	TA	RF	JS	PA	WR	LG	SL	SN	MO	VV	PC	SD	ID	RD	IB	TP	TW	PJ	MN	PS	MD	AH	AC	O	Total
Expected[a] Number	← 11.06 →																																
Observed Number	20	24	23	0	22	9	5	14	5	2	22	20	10	5	11	20	0	1	10	18	29	0	1	16	26	5	19	0	3	1	1	12	354

$$\chi^2 = \sum\left[\frac{(f_o - f_e)^2}{f_e}\right] = 241.76.$$

Significance = $p < .001$**

Degrees of Freedom = 31

Note.

[a] Expected number equals mean number of special educational support services used by respondents.

[b] Includes: RM - Remedial Mathematics; RR - Remedial Reading; RT - Technical Tutor; RB - Bilingual Remedial Instruction; RS - Socialization Instruction; CG - Career Guidance; CW - Career Exploration; PF - Personal/Family Counseling; TA - Testing/Assessment; RF - Referral to Other Agency; JS - Job Seeking/Keeping Skills; PA - Placement Assistance; WR - Writing Skills; LG - Language Skills; SL - Speech/Language Therapy; SN - Sign Language; MO - Mobility Training; VV - Van/Adaptive Vehicle; PC - Public Conveyance; SD - Special Devices for the Student; ID - Interpretor for the Deaf; RD - Reader for the Blind; IB - Interpretor/Bilingual; TP - Tool Purchase; TW - Tuition Waiver/Financial Aids; PJ - Payment for Job Training Sites; MN - Maintenance; PS - Prosthetic Devices; MD - Medical/Dental Assistance; AH - Adaptive Home Equipment; AC - Aide/Companion; O - Other.

Source.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.

** Due to some dependence (non-orthogonality) between categories and the use of multiple comparisons, the levels of significance obtained should be interpreted with caution.

TABLE 35.

CASE EVALUATION -- STUDENT PROBABILITY OF SUCCESS

Category	Case Study			
	Case A		Case B	
	Number	Percent	Number	Percent
1 - No Chance	1	3.2	0	0.0
2 -	3	9.7	3	9.7
3 - Uncertain	9	29.0	10	32.2
4 -	16	51.6	15	48.4
5 - Absolute Certainty	2	6.5	3	9.7
TOTAL	31	100.0	31	100.0

TABLE 36.

CASE EVALUATION -- PERCEIVED DIFFICULTY OF CASE STUDIES

Category	Case Study			
	Case A		Case B	
	Number	Percent	Number	Percent
1 - Much Less Difficult	2	6.5	0	0.0
2 -	4	12.9	3	9.7
3 - Same	16	51.6	11	35.4
4 -	8	25.8	14	45.2
5 - Much More Difficult	1	3.2	3	9.7
TOTAL	31	100.0	31	100.0

TABLE 37.

CASE EVALUATION -- SELF CONFIDENCE IN DIAGNOSIS AND PRESCRIPTION

Category	Case Study			
	Case A		Case B	
	Number	Percent	Number	Percent
1 - No Confidence	0	0.0	0	0.0
2 -	0	0.0	2	6.5
3 - Uncertain	4	12.9	1	3.2
4 -	23	74.2	24	77.4
5 - Absolute Confidence	4	12.9	4	12.9
TOTAL	31	100.0	31	100.0

TABLE 38.

CASE EVALUATION -- SELF PERCEIVED AGREEMENT WITH SPECIAL NEEDS PRACTITIONER PEERS

Perceived Level of Agreement With Peer Group (%)	Case Study			
	A		B	
	Number	Percent[a]	Number	Percent[a]
100	0	0.0	2	6.5
95	1	3.2	1	9.7
90	1	6.5	2	16.1
85	5	22.6	0	16.1
80	1	25.8	4	29.0
75	4	38.7	6	48.4
70	1	41.9	3	58.1
65	1	45.2	3	67.7
60	7	67.7	3	77.4
55	1	71.0	0	77.4
50	6	90.3	2	83.9
45	2	96.8	1	87.1
40	1	100.0	0	87.1
35	0	-	0	87.1
30	0	-	2	93.5
25	0	-	0	93.5
20	0	-	2	100.0
15	0	-	0	-
10	0	-	0	-
5	0	-	0	-
0	0	-	0	-

Note.

[a] Percentage of participants rating at or above this level (N=31).

APPENDIX G

COMMENTS MADE BY STUDY PARTICIPANTS

Comments Made By Vocational Special Needs Practitioners Participating in Diagnostic-Prescriptive Study

1. "In developing an expanded program for additional off-campus courses, I would encourage more offerings that deal with specific problems - i.e. how to teach reading, listening, studying, as opposed to philosophy 'type' courses."

2. "Special needs must have a continuing awareness of the 'continuum of care' needed by the student. We must also recognize the resources of the community and realize that we 'can't go it alone.' Many post-secondary programs are oblivious to or refuse to accept outside expertise in the total approach to student's needs."

3. "I believe that we should make as few modifications to people, programs and normal procedures as possible and still keep the student on track. In both of these cases and most others, I think we should keep good follow-along records and make changes only when they are needed, i.e. switch these people to a prevocational program if related support instruction in reading isn't enough, or get them into a Planning Center if for some reason there is little hope of them being successful in their first choice program.

   I also think that we 'professionals' too often place a greater importance on what the 'file' tells us than on what the student tells us. Ideally, I think the first step should be to meet the prospective student, the second step is to aid the student in whatever manner the student deems necessary and appropriate.

   It's too easy to take agency dependent people and make them support services dependent -- the harder job, the one we need to be doing, is the job of helping our students become independent and competitive in the world of work."

4. "This has been a good learning exercise for me."

5. "Perhaps licensure requirement changes should have waited until the results of this study were made available.

   I believe strongly in the regular class placement as much as is possible. Thank you for letting me participate."

6. "Our program for special needs is limited - but we do have excellent 'community resources' - and very good cooperative working relationships with them. Also, excellent training programs/courses for special needs are available through local and area institutions of higher learning."

7. "During the Special Needs conferences/workshops on how to use specific testing, use of medical information as related to vocational training programs, and the development of Individualized Vocational Plans would be helpful."

8. "Interesting project - enjoyed it!"

   It's extremely difficult to deal with hypothetical situations, despite the in-depth information provided. There is no substitute for personal contact.

   In-service sessions for certification should include: community resources, financial aids alternatives. I feel a cooperative or network relationship between AVTI's would provide greater opportunities for sharing of ideas, students needs, and exploratory experiences."

9. "It is my professional judgement, based on 9 years of direct client/student counseling, that there is a need for professionals to become more skilled in vocational diagnostic interviewing in order to draw appropriate plans for clients. I have found this to be a major deficient area among my colleagues--being able to select and solicit appropriate information, process and utilize it tomake the best plan vs. hit & miss plans. I feel continuing education-in-service training could improve this deficiency. I feel this interviewing can be learned and be extremely useful in putting together appropriate vocational plans."

10. "Have yearly conference, in each of the special needs areas, to keep up-to-date on the latest research, methods, legislation. etc., as it pertains to vocational education."

11. "Our school has done very little in the area of special needs. Hopefully this will chnage in the near future."

12. "I would appreciate a copy of the research findings upon it's completion."

    Interesting project."

13. "I think all special needs managers, supervisors, or counselors who assist handicapped students with entry into AVTI's rely too varying degress on the DVR or other trained agency counselors who have prior access to the handicapped individulas. I feel I have a good, broad background in the field of special needs, but one person cannot know all there is to know about the multitude of handicapping conditions. Cooperation with DVR, State Services for the Blind, etc., must be fostered to develop/find the best program(s) for the handicapped applicant.

    Also, formal education does not provide all the answers. Six summers as an employment counselor at the Employment Service was worth many college credits to my development as a Special Needs Manager and Coordinator."

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REFERENCES

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